Reflections
ON
FAITH HEALING.

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DURING the last few years the various notions which gather about the name of Faith Healing have gained such ascendancy as to command the attention of all thoughtful men, and of those especially who are responsible for the services of religion and medicine. If not in all times and places, yet over long periods of many nations, the offices of religion and medicine have been united, and one not only by connexion, not even by kinship only, but one in unity of source and sanction. The mystic medicine of the Pythagoreans passed to later generations through Plato and Plotinus; and although in the Hippocratic tradition temple medicine and professional medicine developed independently in the Roman Empire, religion and medicine again joined hands in the cults of Aesculapius, Isis, Serapis, and Mithra. The rite of Incubation, using this name broadly to signify ecclesiastical ritual as a means of cure, was revived under the Empire, and flourished with a vogue, intensity, and crudity which it had not known even at Epidaurus, and thus medicine again became subject, or at any rate allied, to religion through the Middle Ages until the Councils of the twelfth century on the clerical side, and the revelations of Vesalius and Harvey on the medical, once more wrenched the two supreme functions formally asunder. Yet such is their affinity, or their sympathy, that now in our own day again, even as we write, religion and medicine are kissing each other.

As in the age of the Antonines, as under the Byzantine emperors, as in the days of Gregory of Tours, these confusions of medicine with religion mystified medicine and polluted religion with superstitions, well may we ask ourselves if in the recrudescence of to-day also there may not be much that is reactionary and fraught with the evils which are bred of corruption, or, at any rate, of error? But at the same time we shall inquire no less carefully if in it may have survived much that is useful or even precious which, in the exclusive pursuit of either religion or medicine, had been lost or obscured—some infiltration of elements which, if suppressed, break into a ferment. The outbreak of faith healing and the conditions of the outbreak in the twentieth and in the second century present so many features in common that we may reverently ask ourselves if in these times and those some vital elements of human nature and of divine inspiration had thus again and again burst forth upon a starved experience? Or are we to conclude that the reaction is due to a vice of superstition in man so ineradicable that long ages of moral culture have failed to quench it?

Such questions and the matters of practice depending upon them are so urgent and so momentous that, notwithstanding a deep personal reluctance in one who is not a religious teacher to argue about spiritual experience, and that after long thought I do not feel sanguine of compassing more than our reasonable intuitions have already attained in practice, it would be an unworthy hesitation when formally called upon to refuse to consider this problem, however imperfectly. And having set out to speak there is nothing for it but to speak plainly.

Of the common features of which I have spoken there is one on which we cannot but pause, namely that, under the Roman Empire as in our own time, the recrudescence of miraculous medicine—that is, of medicine by way of religious rites—has coincided with the time of eclipse, or at any rate of instability, of religious doctrines; and of change in our conception of the Divine Nature. It is in eras when analytic and critical reason has failed to nourish the creative reason, and science is but enlarging the material conditions of societies, that we shall beware lest a yearning for spiritual life long repressed or ignored, or a blind rebellion against irremediable ills, should flow with force so irresistible as to sweep mankind beyond religion into superstition. Now if, as Dr. Fraser proves to us, provisional superstitions among rudimentary peoples are stages in development, relapses into superstition on the contrary signify and indeed propagate corruption. When divine fervour is cooling the heart seeks warmth in the thrills of witchery.

Now as we cannot discuss any subject profitably until we have defined its terms, we cannot discuss Faith Healing until we have defined what we mean by Faith—of Healing we will speak hereafter.

By "The Faith" a religious society has generally intended an intellectual assent to a code of definite propositions, and has always been fairly content with this legalist acquiescence, preferring it, indeed, to less orthodox saintliness: naturally, because these chains of logic are the bonds of the edifice. But "faith healing" in all times has concerned itself little with intellectual schemes; the function has been notoriously independent of particular religious societies, or of any one society; its wonders have been wrought, and are wrought under, and consistently with, any set of opinions—orthodox, pagan, or bizarre. Of the miracles of Our Lord we shall agree this is not the place to speak. The wonder cures of Epidaurus, of the Tiber Island, of Apollonius of Tyana, of the medieval saints—as read abundantly in Migne and elsewhere—of Oriental magic, of savage dances and chants, as well as of modern pilgrims, Irvingists, Eddyists,* Emmanuelists, and the rest, are in nature and event alike; and thus in considering them we find ourselves concerned not with thought, not with creeds, but with passion in various guises. Even in times like our own, when the claims of the critical and analytic intellect are predominant, this uprush of hope and will is copious even when springing from no religious system, but from more rationalist origins; as from the methods of the Spa, for instance, of the Dietetist, of the Gymnast, of the Electrician, and so forth.

What, then, are the common elements animating all these issues? The answer to this question is beset with grave preliminary difficulties, difficulties which involve the deepest problems of our nature and dwelling place. In the first place we must not only admit but realize that although we have to act continually beyond knowledge, perhaps in every important work, yet we ought never to act contrary to knowledge; we must never act contrary to what is, relatively for each of us individually, the best of our knowledge. Not only so, but we must try to delineate, or at least to sketch what we know, and to distinguish it from what we do not, and even cannot, know. For instance, to say that time and space have no objective existence, but are only modes of our cognition, is beyond knowledge, but not contrary to knowledge; while to seek to know the origin of evil, the reconciliation of freewill and determinism, the distinction of the material and the spiritual, is bootless, for, so far as we can see, the solution of these and such mysteries will always lie outside the scope of our earthly understanding. Yet, notwithstanding, as consequences of great practical moment depend upon the sense in which we regard these antinomies, we have always to act in their regard in some measure beyond knowledge. In life we are met by these antinomies at every step and in every hour; we have, therefore, to make with them a provisional truce, and to perceive that while we can foresee no reconciliation between good and evil, freewill and determinism, material and spiritual, we can frame a working rule in the contrasts of their extremes and more emancipated terms. As Professor Hobhouse has said, our theory of life cannot be complete and consistent; we have, therefore, at various stages of development, "to counterfeit finality." For example, concerning the antinomy of matter and spirit: as in the lowest material categories there is an imperceptible trace of mind-stuff, so in the most spiritual some fine woof of the material is inevitably and continuously implied. Spiritual gifts may or may not consist in the insertion of a new entity, they certainly do consist in a reanimation and remodelling of thinking matter in the uppermost strands of the brain, and probably of some other, perhaps even of all the other, molecular activities of the body. Probably no limb, no viscus is so far a vessel of dishonour as to lie wholly outside the renewals of the spirit; and to an infinite intelligence every accession of spiritual life would be apparent in a new harmony (*συγγυμνασία*) of each and all of the metabolic streams and confluences of the body. On this conviction it is that the hopes and methods of faith healing depend. Conversely, every man who watches his own life must know

* We cannot, I think, allow the profession of "Christian Science" to be monopolized by any sect.

this, as in time of weariness or pain he grieves over the drooping of his soul—that the highest spiritual life depends on the highest bodily health; but this health means, not health only of the belly, not only health of the heart and common brain, but also of the rarest and most exquisite textures of the cerebral web. If in a rude health of the grosser body these subtlest parts have not been exercised and cherished, the total harmony is diminished; highly efficient as, on lower planes, the particular body may be, it is defective in comprehensions, it is an inconsummate body. To this "materialism" of the body, even on its most spiritual planes of structure, we must not close our eyes lest in our search beyond knowledge we walk contrary to knowledge. "To pray well," said the noble Teresa, "one must eat well and sleep well." If into the last analysis the Pauline division between the carnal and the spiritual cannot be carried, if under the relations of other times and of other ideas we have to reinterpret it, yet still in its broader contrasts it points out a plain way of life and conduct—one so plain that the perplexities of the middle terms may be left to the casuist.

It must be granted, then, in respect of faith healing, that spiritual influences, divine directly, or indirectly through human mediation, may to some unknown power radiate from these highest currents downward through the more and more "material" planes, arousing them less and less as they have become more and more statical in order. But, while we grant this, we must first be sure, as we shall presently see, that we have exhausted certain other conditions, more physiological than transcendent, which certainly go far to explain the cases of faith healing, and may within limits suffice to explain them.

Now these things being so, if we are to be careful not to act contrary to knowledge, we know, and must candidly say, that the physical life of a sick man depends, not upon prayer, but upon the timely arrival of the physician with the antidote, upon the hoofs of his horse. In bitter certainty we know that the mother who in the hour of crisis betakes herself to prayer only will lose the child which is spared to the prayerless mother who had learned the path of infection and how to outwit it. And since we have discovered the paths of malaria, of yellow fever, of diphtheria, have we not learned also that to stay these plagues no pageantry nor humiliations will serve us, but to look to our serums and our water-butts? By no invocations can we even think to reach and to purify the cradles of disease; yet in the sphere of prevention lies the future of medicine. These words are spoken not in irreverence—God forbid—rather, I trust, in the deepest reverence of hoping on beyond knowledge, indeed but at the same time of working in loyalty to such knowledge as we have, and of never working contrary to knowledge.

These antinomies are, then, not so much flat contradictions as contrary movements between the lowest and the highest planes; they are points of perspective, the material rising to the spiritual, the rigidly determined to expanding freedom, positive evil to relative good. For if now we proceed to the antinomy between freewill and determinism we shall observe likewise that if in the lower categories of natural structure and forces we feel ourselves in bondage to "mechanism,"* we perceive no less assuredly that, as consciousness and comparison of motives begin, we enter upon a new order, and as we attain to higher spheres of spiritual activity the divine immanent in all Nature becomes more free and radiant. Between freedom and uniformity there is no necessary discord. In the spiritual life we now find all, and more than all, the freedom we can make use of.

And is it not in this manner that we may contemplate the most terrible of these antinomies, that most poignant of the doubts which perplex us, the conflict of good and evil? The darkest hours of our spiritual lives have surely been not in the concern of intellectual difficulties, but in the cry of sorrow, pain, and ruin. To say that in the desolations of San Francisco and Messina, in the blind suffocation of Martinique, in the blighting of the child in the arms of its mother, we are to read the signs of God's vengeance, or to accept the formula, which experience continually refutes, that He makes this evil, this ruin, that He may overrule it for good, is not only to do violence to our own trust in the Father who pities the falling sparrow, but it is to gainsay the judgement of Our Lord concerning the fall of the Tower of Siloam, which made no selection of sinners; it is to dishonour the Gospel, to forsake reason for sophistry, and not to hope beyond knowledge, but to judge contrary to knowledge. For us, indeed, the Father is not God as He seemed to the ruthless Elijah, yet even He was not in the wind, nor in the earthquake, nor in the fire.

To put limits to what God can do were presumption indeed; but we must try to see with eyes open what God wills and what He does not will. Of the tenets of the followers of Mrs. Eddy I know too little to speak with assurance; but it is said that they endeavour to repel or evade the assaults of material evil by persuading themselves that it does not exist, that it is a spectre engendered in the warped and sinful medium of man's understanding. Deeply as we may sympathize with the hearts which will not attribute to God acts or implications which revolt our highest ethical instincts, which cannot see in the earthquake infinite love, this denial of the plainest facts of life is too audacious an imagination to serve us in the interpretation of disease. This is not to hope beyond knowledge, but to defy knowledge, and the humblest truth must go before the noblest error. When we refuse to face facts all is lost; we may not hypnotize ourselves.

Then how does an ascent to the higher planes of spiritual apprehension help us to understand or to withstand these terrible conflicts of the best and the worst in and about us? Well, to me it appears that our light and consolation are in this: that the conceptions of all the religions have been and still are too static; that, as in all else, our conceptions are expanding from those of Being to those of Becoming; to apprehend that the Divine Soul has striven with Chaos, as in its microcosm the human soul is striving; that even for God Himself the Cross was on the way of perfection. And if to any reader such a meditation seems untimely or overstrained I must plead that by this way only have I been able to gain a foothold, or to give a provisional answer to the problems on which thoughtful men are seeking counsel and, amid their failures and afflictions, consolation.

If, then, we are to face the facts, if these mutually complementary disengagements of the spiritual from the material, alike in the universe as in the microcosm of man, are practically valid, then the power and range of prayer must be directed not to our natural strife against carnal evil, but towards these spiritual disengagements, towards that sphere wherein the human and the divine spirits meet each other, love, and seek unity. We shall not pray, then, for things frankly material, but for spiritual gifts; not for the setting of a bone, nor even for the renovation of a withered or a poisoned film of brain, but for conformity with the divine will, and for that communion with God which seems to be one of the most assured of those moral probabilities which mould our lives. Congregations of to-day would be taken aback to hear the prayers for change of weather which in my childhood were customary, as our children will cease to pray for deliverance from plague, battle, and tempest, but to be delivered from envy, blindness of heart, and uncharitableness. The prayers of Our Lord were directed rarely and scantily to the material side of life. "Give us our daily bread" was but the elementary condition of a prayer for spiritual gifts. And in the Psalms, that mine of prayer and adoration, the few material petitions—"that our garners may be full," or that we "may go upon the lion and the adder"—are plainly metaphorical.

If, then, in medicine the spiritual is never wholly divested of the material, and the material is never wholly withdrawn from the influence of the spirit, yet in practice we discover that to avoid dilemma we must distribute a certain range to each aspect of the compound function. And on returning now to the chief question before us—Is prayer effectual for the corporeal needs of the sick?—we will proceed to consider the provisional demur already signified—that before yielding to the temptation, which besets us all, of transcendental solutions, we must exhaust those nearer explanations which we call physiological. It is probably true that, by reinforcement and harmonizing of that part of the vital web which ministers to the spiritual life, we may pour out energy into certain other saving capacities of the human body—

* This term, which vitiates most modern philosophy, I use to be readily understood; but mechanism, however vast, is but an extension of man's hand, without which it is nothing.

processes wherein "thoughts touch their effects." I saw it assumed in a recent essay on this matter, that on the sick bed good Christian men and women make better recoveries and surmount their physical ills better than the irreligious. This is my experience only thus far—that while a calm and happy temper is conducive to therapeutical succour, rebellious agitation is contrary to it; for my part, by the sick bed of saintly men I have observed that in not a few of them the instinct of self-preservation continued so strong that in spite of divine hope they clung to life; yet not more successfully than men of coarser habit who stretch out their days by strength of will and worldly desire. I am not convinced that spiritual inspiration, as such, is directed with any specific quality even towards bodily survival, still less to repair damaged limbs or tissues; though perhaps this conclusion is to be accepted with some reserve in respect of those highest cerebral films which are more especially the seat of that "innermost" wherein lie conscience, spiritual freedom, and the vision of God. Yet we see daily that when these textures themselves are in decay, or poisoned, the instrument of the soul is broken, and access to divine aid is lost in the utmost need. And this not in "insanity" only, but in many another malady, indirectly dimming the fairness of the mirror.

Be this as it may, the "lower," the more mechanical the lesion—a broken bone, for instance—the less can we count even upon the mediate healing of spiritual influences, not even upon those effects of sympathy and encouragement whereby, humanly speaking, fading and vacillating forces are fortified and replenished. Speaking broadly, it is in the fields of functional disease that we shall anticipate, and that we find, the most striking effects of spiritual influences; and then to less and less degrees about the functional fringes of diseases more and more static—in cases, that is, in which, although equilibrium, local or general, is disturbed, stability is not lost. But from diseases of this class a very large deduction has at first to be made for coincidence—for the *post hoc, propter hoc*. And even in those in which the beneficent effect of "faith" seems indisputable, we shall assume no miracle, no insertion of a new entity, no dislocation of natural order; but inquire more particularly what, if any, effects within this order we may expect from the "mind upon the body." In ancient times this question was soon answered; the soul differed from the body only as gaseous matter differed from solid. The pneuma, the breath of life, was familiarly seen to enter and to leave the body, and new volumes of the pneuma were to be sought, perchance from the heavens. We no longer believe ourselves able to call forth and convey entities thus; what we do believe is that we can call forth latent potentials, release energies, and trim sails to their breezes. In our modern logic we are wont to divide too much human faculties which act together or in fusion; still, it is true that, if reason be at the helm, the breezes spring from the emotions. Without passion to fill his sails the helmsman makes no voyage. How, then—for faith healing is no mere speculation, but means business—how is it to be done? If the wonder cures are not miracles, how are we to account for them? Before we incline to miraculous intervention what capacities are there in physician and patient whereby a failing vitality may be fanned, and whereby even a local lesion may conceivably be affected? It seems to me that there are such material means, and that they are at least threefold; I will call them Solace, Reanimation, and Readjustment.

Of solace, of the calming of fret, of the gentle hand for the body and the gentle voice for the heart, few words are needed. By solace energy running to waste is spared. For his reflecting brain man must pay the cost. By reflection his pain is infinitely multiplied; we suffer ten times over; pain and sorrows are fanned by regrets and by forebodings, and to their inroads is added the weariness of inhibitory controls. Solace at any rate we shall be content to call humane therapeutics.

Reanimation depends on that principle of "reserve," in each organ of the body and in the organism as a whole, on which for medical readers I need not dwell at length. It is well known to experimenters in ablation that a fragment of an organ left behind makes itself felt in their results; that often for a time the specific quality of it may persist in something like full measure. In common therapeutics we are wont to liberate such reserves by drugs like digitalis, or strychnine, by certain "physical" methods, and so forth. As I have said, an organ, a psychical organ for instance, or higher association web, may for lack of a stimulant, ethical or other, recede, and yet be capable, on the access of such a stimulant, of re-entering the functional concert. I think it cannot be doubted that the existence in almost all patients of unexpected reserves of potential energy, especially in maladies partaking more or less of the nature of hysteria, is a large factor in the results attributed to "faith healing." For in all disease, eminently of course in chronic disease, parts and functions not directly impaired, whether by contraction of receptive fields or by lapse of associative strands, tend to sink into inactivity. When we entreat the patient to "make an effort," it is to encourage him to keep alive every function over which he may still retain any control. For example, in tabes many limbs and parts of limbs outside the ring of the fixed disease tend to slip into a common indolence with those which are irreparable; and the physician knows that by re-education on this margin a surprising measure and kind of efficiency can, even at later stages of the malady, be recalled. In the defect of the damaged parts those in functional abeyance may, it is true, be of no great or immediate usefulness, yet we find that to reanimate is not only to multiply the will power by pouring fresh streams of energy into the system, but even to gain some advantage over the malady itself. Thus in many a severe functional malady, to arouse latent reserves by a rekindling of hope and courage may compass a marvellous cure, and a lively rally even in some by nature incurable.

Of such are the reserves; now as to readjustment of the balance of forces. If we imagine the human system in its swift orbit and mutually reciprocating parts we shall see it revolving about some centre, and we shall desire to see it in each of us revolving about its ideal centre, and in some larger concert than the individual life. But how often is this so? Which of us can hope that his more exalted functions have, as a spiritual gyroscope, so habitually governed the commoner and the meaner that his life has not generally, or too frequently, found its centre of revolution at or about some lower point? Now it is a curious inquiry in physiology, and one which, as we have seen under "reserves," is of chief importance in our present inquiry, how far and for how long a considerable function may run at low speed, or even fall out of gear, without withering; and still, after the lapse of time, of years perhaps, be ready to bound suddenly back into the system, even with accumulated intensity. On the spiritual side the unquestionably genuine phenomena of Conversion point to such changes, to new tides so swift and voluminous as to swing the system out of previous equipoises, and to move to some larger measure. And if unhappily the new equilibrium be too often transitory, if too often the bondage of older habit drags the system down again to its former and lower mean position, yet in many instances the new position is maintained permanently. The annals of our own times, the annals of our Churches and religious "Armies," are rich in such witness.

Now it appears to me that the phenomena of "conversion" are in the spiritual life like to, and indeed partially identical with, those of disordered or oblique bodily balance. In hysteria—the most notable sphere of such phenomena—larger or smaller receptive fields are shut off, so that their corresponding centres, though still supplied with blood, are in abeyance; they stand out of gear. Then all at once—as a fluid may suddenly freeze at the tap of a finger, as an electric coherer may be shaken into activity, or as a jar to a kaleidoscope may transfigure its picture, so all at once the parts shut off may slip back into gear, and the system rise to revolve about a correspondingly higher centre. In the spiritual life we call this change regeneration; in the sphere of functional disease we call it cure; often a wonder-cure. We have seen that even the purest spiritual life depends upon bodily integrity; unless all the organs and tissues are there, and relatively complete, the transformation cannot take place, and the system can revolve only about some inferior centre. Without, substance that, if dormant, is sound, there is no "point de prise."

So far, then, as the malady depends upon suspension or arrest of parts, the cure depends upon their being still potentially efficient and available when the new impulse stings the dormant periphery into sensation. Thus the magnetism, the call, or the alarm which makes the hysterical paralytic leap up, will not make the man walk whose leg is broken, or whose motor centre is poisoned. Or if, under great exaltation of heart he were to stagger to his feet his effort would be brief and evil. And thus again the healing balm for the sorrowful heart will fail to comfort the melancholic in whom the corresponding part of the psychical texture is torn or poisoned.

Now, although much of what has been said applies both to reserves and to perverted balance, yet we know by clinical experience that to call out reserves and to transform equilibrium respectively requires, as a rule, different means. Speaking now in that emotional field with which we are occupied, we perceive that while sympathy and ardour may call out reserves, to alter balance we must often exhibit something of a collision, a shock or surprise, pleasurable or even painful. Thus, highly-charged particles may be released and the composition of forces transformed as by a detonation. I suspect it will be found that all notable wonder-cures have been of this nature, or of the nature of astonishment; moreover, that they have been effected in hysteria, that amazing mimic of all and any disease. So Charcot, with his illustrations from Lourdes, was wont to assure us, and later experience has convinced me that his doctrine is true in the main. But the method of astonishment would not by any means be appropriate to the relief of the faint-hearted whose reserves we desire to call out; in most cases it would prove injurious.

It is in those lapses, melancholies, or ecstasies in which hysteria often begins, whims which Teresa regarded as the chief perils of the conventual life, that the domination of a stronger will—a "magnetic personality"—often prevails. Teresa declared that all this "letting oneself go" came of "sick brains"; and physiologically we know that in functional disease, in order to force open torpid functions, we often have to shut down certain lower issues through which energy is running to waste; so that love is only complete in a certain austerity. She warned the religious that "if the body be neglected it takes a terrible revenge upon the soul." She gently taunted a certain prioress with the words, "If I were with you you would not have so many of these extraordinary phenomena." "Suspect," she said, "everything which weakens the use of our reason; for by such a way we shall never attain to the liberty of the spirit." And her curative measures were as vigorous as her preventive; she began by assuring the visionaries that their brilliant humiliations were not in the least interesting, while the ardent worker or ascetic she would warn more gently that not till the harm is done will the strain of the endurance make itself felt. Very wise medicine, in all such ministrations to be remembered.

Now as Teresa thus recognized hysteria in all its guises, she disdained to assail it with prayer and ritual. She affirmed that to turn prayer and religious ceremony to impose upon these fantastic folk was to degrade it. It was by mundane methods that she brought them to their senses, quelled their fits, and dissipated their palsies.

Once more, it is said that in his "subliminal self" man possesses a substance peculiarly divine, or a substance or means through which we may reach divine communion, or through which especially divine purposes may be fulfilled in us. It is true that we do not know even approximately the content of the individual man, of the materials racially and personally acquired, the products of past experience, racial and personal, built sensibly and insensibly into his personality. May we not each of us be compared with a ship which began its voyage with no inconsiderable rudimentary equipment, then, calling at many a port, has gathered many kinds of stores and treasure? Of some of these stores, of some variety of them, the supercargo has a recollection, especially of those in frequent use; but, for the most part, the bills of lading had been lost. Unlike a cargo, however, these contents are not a passive burden, but a system of coefficients; some on planes which we commonly call material; some on spiritual planes; some working on the surface, some working stealthily within; so that much tact and insight are necessary to unveil and to reanimate those agencies in whose abeyance disorder or ineffectualness may happen to consist. And the influences which are to effect these revivals must be akin in nature to these kinds respectively; some must be solidly material—such as splints or drugs—some must be religious, moral, and even intellectual, yet inspired by emotion, by appeal to hope and joy; and their instruments must be devotion, sympathy, gladness, reasonable persuasion, and even surprise.

We have said that, although we do not know the contents of the individual vessel by the list, they are either freely or potentially active. Moreover, we know that each individual is by itself impotent; that, indeed, solitary confinement will derange and kill the individual. For its life, whether as a whole or in its parts, the mutual play of individuals one with another is a necessary condition. Furthermore, if about any one individual the play of the associated individuals is only partial, so that certain of its receptive fields are outside the play of common association, these unstimulated parts will fall into abeyance; though, if the activity of the whole be not gravely impaired, they are kept alive in the systemic ("subconscious") life, and will be ready to glow with animation again when kindred vibrations awaken them. Thus I have often spoken of individuals as the "synapses" of the social body, synapses endowed with instinctive affinities by which we awaken and kindle each other, and so cumulatively animate the whole social system. Now some persons—the "magnetic"—are peculiarly endowed with richer or intenser degrees of these instinctive "synaptic" affinities, and have thus rare and even singular faculties of awakening and stimulating others. Such persons are likely to enter the clerical or medical professions, and therein to multiply these faculties, and to use them for the refreshment of the sick and the sorrowful.

And if of those so happily endowed the light of the eye, the touch of the hand may impart marvels of refreshment and comfort, yet for the many less fortunate ministers to whom this measure of virtue is not given we may have to build up some standard of expression and form, a standard which shall be in itself impressive, radiant, gracious, and informed with the memorials of the past. For this service it may be true that to awaken our highest functions, whether we be sick in body or in mind, some form of words and ceremony may be necessary. For we perceive, no doubt, that beautiful forms, which for some persons at any rate, have lost much of their meaning, may for others effect more than the shy lispings of the most benevolent extempore minister. Yet the ultimate danger of forms is great—lest they become the armour of Saul! For as men are prone to believe that the internal significance will always follow the external performance, ritual insensibly supplants ethics, and we go astray upon the confines of thaumaturgy and magic. Formulate it as we may, faith healing consists in part in sympathy, in love, in active devotion; in part in comprehensible medical and surgical skill; but also in part in dispelling spiritual torpor, and in emotional surprise; and for these uses we may find a genuine ally in ordered and even ceremonial appeals to the heart and imagination. But we shall shrink from anything like bamboozling our patients with pretentious apparatus, we shall withdraw from hieratic artifices and all practices akin to imposture, remembering Lavoisier's true saying that "Medicine came into the world with a twin brother called Charlatanism."

For the hysteric at any rate the bedchamber is unwholesome; the disease, engendered of isolations, is fostered by the seclusion; in social suggestion lies its cure. For the sick and afflicted, on the contrary, peace and rest are restorative; and in the solitary chamber, where the stimulating synaptic vibrations of common life are muffled and remote, social "suggestion" is suspended. Therefore in the main the piety of the sick bed is a passive piety, the spirit is drooping; and then it is that a renewal or economy of energy—of emotion—both in the patient and his ministers is efficacious, "lest his brethren's heart faint as his heart." Even in health some men cannot play a losing game. At such moments and in this solemn seclusion a "synapsis" with spiritual issues, an inspiring touch to higher apprehensions may through the soul revive the animal spirits. Yet here again unless the faculty of spiritual conversation, a habit which like other attainments depends on exercise, had been formed in the health needful to its full practice it will be hard work in sickness to

attain to it. The physician knows there is no more arrant delusion than to suppose sickness to be a convenient season for inspiration; it is rather a season of apathy, or of despondency—*Domine quid multiplicasti!* At best the mystic quietism of the bedridden is not a virile enthusiasm; it is pallid and tenuous in fibre. Still it is true no doubt that the solitary and disconsolate heart, closed to common circumstance, may be more susceptible to other appeals, may offer less resistance; so that, as we have seen, unknown wells of energy may be tapped and fading and vacillating forces replenished. Then it is that the influence of a clerical minister, of a gentle friend or Bible-woman—brief angels' visits lifting up human hope and love into Divine love—may be twice blessed, blessed materially and spiritually. But even then the physician can take no active part in hypnotizing the smitten sufferer with promises of corporeal repair. Indeed in the more formal spiritual ministrations his part can never be direct; they are not obviously his business, and even a religious patient resents the divided mind. Notwithstanding, the sick man does feel dimly that diagnosis limited to material phenomena is imperfect; that its insight ought to penetrate to mental and spiritual as well as to bodily conditions; and he would say, did he know how, Do you understand *me*, or am I only a case? This seems to be our modest part in faith healing; and with it these reflections must end. How tentative and inconclusive they are no one is more painfully aware than the writer himself.

"SUGGESTION" IN THE TREATMENT OF DISEASE.

BY

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ALTHOUGH the theory of faith healing differs from the theory of Christian Science, and that again from the theories of mesmerism, hypnotism, and animal magnetism, there is one thing which is common to them all, namely, the power of "suggestion." And by suggestion is here meant the enforcing influence of an idea.

Faith healing and Christian Science may be grouped under the term, "religious suggestion." Mesmerism, animal magnetism, etc., are now commonly spoken of as "hypnotic suggestion." All are included under "mental healing." In each of the methods of mental healing the curative effect seems to be brought about by the influence of some strong or vivid idea, of some subtle energy other than physical, upon the abnormal or morbid states of the body. To attempt to answer the question, "What is the psychological process by which this power or energy—'suggestion'—works the cure?" would require a consideration of the theories of "unconscious mind," of "unconscious cerebration," and of "dual mind," or in other words, the relation of the conscious or objective side of the mind to the subjective or subconscious side. It must suffice to say here that the most accredited theory at the present time as to the states of mind induced by hypnotic or religious suggestion is that the objective side is thrown into abeyance, whilst the subjective is brought into a condition which enables it to receive suggestions.

The readiness with which the subjective mind can be reached varies greatly in different races of men and in different persons of the same race. The French, for instance, are found to be more susceptible than the English. Some persons pass spontaneously into the hypnotic state, others are not at all amenable to either hypnotic or religious suggestion. Some are affected against their will; others, though willing and even anxious to be hypnotized, remain unaffected.

Esdaile, it is said, on one occasion hypnotized a man in open court behind his back and without his knowledge. Some operators are more successful than others. Some cannot hypnotize at all. Thus, it would seem that in some individuals the objective mind cannot be put into abeyance either at the wish of the person himself or at the will of another. Again, different subjects, even though susceptible to an equal degree, show very different phenomena under the influence of hypnotism. In some, ordinary consciousness is lost, and sleep, trance, catalepsy, or somnambulism results, the subject rendering absolute obedience to the operator and on waking being unaware of what has passed. In others the effect of suggestion is marked by an exalted intellectual or emotional power, or by the acuteness of one or other of the special senses being so heightened that the subject is able to do things which he is quite incapable of doing in his ordinary state.

MENTAL SUGGESTION.

Hypnotic and religious suggestion are quite different from what is understood in metaphysics as mental suggestion. In psychology and metaphysics the term "mental suggestion" is used as the equivalent of "mental association" or the "association of ideas." It is employed to account generally for the facts of mental life, and to express in a general way the principle which Berkeley applied specially to the problem of visual perception—namely, that one idea may suggest another idea to the mind if these two ideas have been associated together frequently; and that, too, without our having any proof of the necessity of their co-existence, and without even knowing what it is that makes them co-exist.

The principle of "association of ideas" was pointed out by Aristotle, but the expression was first employed by Locke. Subsequent philosophers, especially Hamilton and Hartley, urged that association extends beyond ideas or thoughts proper to every class of mental states.

Hartley being a physician by profession as well as a metaphysician, in his *Observations on Man*, published in 1749, combined the doctrine of mental association with a detailed hypothesis as to the corresponding action of the nervous system, and he enunciated the principle that any sensation frequently associated with another sensation will, when presented alone, call up in the mind the ideas which are excited by that other sensation also. James Mill carried the doctrine still further than Hamilton, Hartley, and Berkeley, and held that "some ideas are by frequency and strength of association so closely combined that they cannot be separated; if one exists the other exists along with it, in spite of whatever effort we make to disjoin them." And John Stuart Mill made the same statement, though in somewhat more guarded terms, as to the "inseparable" character of the association of certain mental states.

Thus it is apparent that "suggestion" as a force in producing mental cures concerns the influence exercised by another person, or by some other external agency, upon the mental and physical states of an individual; whereas "mental suggestion" is the spontaneous recurrence of trains of thought in the same individual. "Mental suggestion" is a psychological process absolutely distinct from hypnotic and religious suggestion. Indeed John Stuart Mill sought to prove that "inseparable association" is the ground of our belief in an external objective world; whereas Christian Science denies *in toto* the existence of such a world, and under the term "Mortal Mind," which Mrs. Eddy uses as "the specific term for error," she refers to the body and to the whole material world as non-existent.

HYPNOTIC SUGGESTION.

Suggestion as a powerful agency was not unknown to Mesmer, but its significance was overlooked by the earlier Mesmerists, who adopted instead the theory of the "magnetic fluid" in explaining their influence over patients.

James Braid, of Manchester, who, in 1841, originated the word "hypnotism," denied that the mesmeric phenomena were caused by the "magnetic fluid," though he himself made use of mesmeric "passes." Braid, the hypnotist, the propounder of the theory of "nerve sleep," appreciated the importance of suggestion better than Mesmer; and Braid's followers, who anticipated the celebrated Nancy school of hypnotists, developed the theory of suggestion to a considerable degree. According to Braid, "the sleeper" shows "physical manifestations of the suggestion received through words, or excited by sensible impressions which thereby direct his current of thought"; and he further taught that "definite physical changes could be excited and regulated and controlled at will, according to the suggestion of another person."

In 1851, both Dr. Gregory of Edinburgh and Dr. Hughes Bennett described the phenomena of hypnotism as due to suggestion; and Bennett's view was that the predominating ideas which excite the phenomena of

mesmerism may be either of spontaneous origin or suggested by the words and actions of others.

Dr. Liébault, the founder of the Nancy school (1880) of hypnotists, declared that there is nothing in hypnotism except suggestion. Indeed, most mental scientists of the present day are agreed that the basis of mesmerism and its effects is a marked susceptibility to suggestion, the mind, including the will of the subject, being ready to receive and act upon any idea impressed upon them by the operator.

It is evident from what is now known that animal magnetism, electro-biology, clairvoyance, odic force, mesmerism, and hypnotism are essentially one and the same thing, which has undergone a series of revivals under different names. They all have had the same origin, and the same history; and while the different names predicate different theories, they do not in reality stand for any difference in method.

It would appear that in all ages hypnotism has been known, though not under that name, as a means of curing diseases. It is also known that amongst the Greeks and Romans, and in many Oriental nations in olden times, priests performed cures by throwing people into deep sleep; and that in England in the seventeenth century several individuals claimed to have power of healing the sick by stroking with their hands. Such influences were pretty generally held to be supernatural and connected with religion. Since the eighteenth century the hypnotic state has been induced in a number of ways precisely like those used in producing the mesmeric "crisis." In the latter quarter of the eighteenth century Mesmer and his immediate successors in Paris employed mesmerism as a curative treatment for disease. This practice was stopped by the French Revolution, but about the year 1820 it was again widely adopted in hospitals, and minor operations were performed under its influence. In 1831 a commission of the Académie de Médecine, after an inquiry extending over five years, issued a report in favour of the reality of the mesmeric phenomena. A later inquiry instituted by the same body was, however, followed by an unfavourable report.

In 1843 Esdaile, a Scottish surgeon, successfully made use of mesmerism on a large scale in India as an anaesthetic agent for major operations, though he did not regard it as a remedy for all kinds of diseases. In 1851 Dr. Gregory declared that, in his opinion, hypnotic suggestion had a useful and increasing application in medicine; and in the same year Dr. Hughes Bennett, referring to Esdaile's successful work in India, expressed the view that before long mesmerism would become acknowledged as a rational means of treating diseases. Charcot in 1877–80, when investigating the treatment of hysteria by metal plates, stumbled upon the hypnotic or mesmeric state just as Mesmer himself had done in 1774, and, owing to Charcot's great name and fame, hypnotism took a fresh start in France, and once again became recognized as an orthodox method of treatment. In 1889 an International Hypnotic Congress was held in Paris, and was attended by leading representative men from all Europe and from North and South America. The result of this conference was to give hypnotism a great stimulus and to raise sanguine expectations as to the usefulness of it in medicine. But in spite of the complete vindication and recognition of the reality and existence of the phenomena of mesmerism, and in spite of the thorough trial of it in the treatment of disease at certain epochs between 1820 and 1889, to which I have just alluded, it has never long maintained a hold upon the medical profession. Its successful employment has for the most part been limited to disorders of the nervous system, the relief of pain, the cure of dipsomania, and the production of anaesthesia. The Nancy doctors, after Charcot in 1880 revived attention to the hypnotic or mesmeric condition, employed it in every class of diseases, including the specific fevers, but with inconspicuous success. Charcot came to regard the hypnotic state as a morbid condition allied to hysteria, and abandoned it because, as he said, it did more harm than good, and added to the disorder of already disordered nervous systems. Nor was its utility extended or confirmed by longer experience in the practice of others.

Though hypnotism has from time to time been revived, and there have been periods when it excited great interest on account of its positive effects, it has invariably fallen back again into disfavour, owing to the uncertainty of its action and its failure on a large scale as a therapeutical agent. Moreover, it has been found too dangerous for general use in medical practice; and in order to produce a state of anaesthesia sufficiently profound for the performance of surgical operations the patient must be made highly susceptible by repeated hypnotization, extending over weeks, and in the course of the process he is pretty sure to have his will power permanently enfeebled (Shadwell).

For these reasons the profession as a whole has been fully justified in holding aloof from the practice of hypnotism; and a knowledge of what has been done in the past ought to be an effective discouragement to every proposal to return to it either now or in the future.

RELIGIOUS SUGGESTION.

Religious Suggestion includes (A) Faith Healing, and (B) Christian Science.

A. Faith Healing.

In faith healing the suggestion is that cure will be worked by spiritual or divine power, especially if this power be appealed to at some particular place such as a sanctuary, the foot of an idol, a fountain or pool of water, the resting place of some sacred relics such as the bones of a saint, or, it may be, in presence of the Eucharistic procession or during High Mass or the administration of the Holy Sacrament. Healing power is also believed to reside in the touch of a king, and in that of a seventh son of a seventh son, and also in the incantations of a "wise woman."

This divine power, or energy, is supposed to act by neutralizing or overcoming sickness, disease, and the ill consequences of accidents. The faith healer does not doubt the reality of matter or of diseases, but believes that he can draw upon a spiritual force to subdue or annihilate an existing evil.

Lourdes Cures.

Conspicuous amongst the cases of faith healing are the Lourdes cures.

Charcot describes these as cases of hysteria and of other neuroses, cured by religious suggestion; Bernheim speaks of them as cures by suggestion; Berillon as cures by hypnotism. On the other hand, Dr. Boissarie, the chief of the "Bureau des Constatations" at Lourdes, repudiates all such explanations and declares that they are supernatural effects and nothing less than miracles. Faith healing and hypnotic suggestion, he points out, are forms of "treatment by an idea," exercisable upon only a very limited range of disease. In such healing the only curative intervention is the power possessed by the mind over the body; beyond this range faith healing clashes with that impassable barrier—the laws of Nature. But at Lourdes, he tells us, there is no limitation in the character of the cases cured.

Tumours, wounds, and all sorts of organic diseases in others than neurotic patients, diseases which have resisted all forms and varieties of medical and surgical treatment, are cured, and *cured instantaneously*, at Lourdes. Some of the patients recover after drinking at the spring of the grotto, some after bathing in the pools there, some during the Eucharistic processions, others at or after attending Mass or partaking of the Holy Sacrament, and others again by praying quietly and in solitude at the shrine of the Immaculate Virgin.

Cancers disappear, tuberculous ulcers cicatrize, perforations of the cheek and palate are instantly and perfectly filled up, gastric ulcers heal, the blind are given sight, and suppurating joints, tuberculous peritonitis, necrosis of bones, gangrenous feet, etc, are made well in the twinkling of an eye. Indeed, it seems only necessary for some individuals merely to touch the soil of Lourdes to be instantaneously restored to health. Suggestion, Dr. Boissarie tells us, whether religious or hypnotic, is as a curative agency at best very limited, being confined to patients affected with simple functional troubles, or broken down in health from overwork, whilst serious cases of hysteria may even suffer harm instead of being benefited by it. But at Lourdes there are but few functional troubles, whereas, on the other hand, persons with all sorts of different organic diseases are made well either during their sojourn in the place or after they have returned home therefrom, quite independently of any influence of suggestion.

These supernatural manifestations not only surpass the possibilities of art and science and the ordinary limits of the powers of Nature, but they actually turn the laws of Nature topsy-turvy. The inference to be drawn from

Dr. Boissarie's descriptions is that the miracles performed through the Immaculate Virgin at Lourdes are even more wonderful than those of her Son and His Apostles. Their works, though exceeding in extent the ordinary powers of Nature, never contravened the processes of Nature, as we learn from the readiness with which Christ turned water into wine but refused to change stone into bread, or to cast Himself down from a pinnacle of the temple to prove that the angels who were given charge of Him would bear Him up, and prevent Him suffering any physical hurt.

It is useless to discuss the character of the cases cured at Lourdes, or to dispute the opinions entertained in favour of the view that these cures are of a miraculous and supernatural order. The polemics of the subject will never cease. And certainly it would be foolish to deny the occurrence of extraordinary events at Lourdes, and unwarrantable to question the sincerity and bona fides of Dr. Boissarie and his colleague in charge of the "Bureau des Constatations," from whose notes and records we derive much information. But I confess that, after a careful perusal of Dr. Boissarie's book *L'Oeuvre de Lourdes*, I am not convinced of the correctness of his views or of his interpretation of the remarkable cures he has related therein.

I am in sympathy with the attitude adopted by Professor Fournier and Dr. Besnier, of Paris, to whom the notorious case of Madame Rouchel was referred in 1905. This was a case of lupus of the face with perforations in the cheek and palate, and extensive tuberculation and ulceration of the lips and other parts of the face. The report is that both these perforations were instantaneously healed in so complete a manner that it seemed as if there had never been any loss of substance.

The woman came from Metz, and sometime after her return she was made the subject of debate at a conference of doctors there, at which Dr. Boissarie was present. Dr. Muller, the skin specialist of Metz, in particular declined to accept the case as one of veritable instantaneous cure, in the absence of any medical evidence as to the condition of the disease immediately before the moment of asserted cure. And no one can censure Dr. Muller for his incredulity, seeing that the only evidence in support of the condition of the woman's face just before she was healed was the testimony of a hospital nurse and a *religieuse*, and the casual observation of a bath attendant, a publicist *en route* to the grotto, and a chance visitor to Lourdes in the person of a school teacher. But no medical evidence was forthcoming beyond that contained in certificates, and no medical man had seen the case later than eleven days before the asserted miracle of the instantaneous healing of the perforations in cheek and palate.

The Paris professors mentioned above declined to act as arbitrators in the dispute between Drs. Muller and Boissarie; and although they made a very prolonged and detailed examination of the woman's case, they refused to pronounce an opinion as experts in medicine on what had occurred at Lourdes. They remarked that it is not in the interest of religion to confuse science with religion; but that they should have supposed it would have given the Holy Virgin no more trouble to completely cure the lupus than to fill up the perforations in the cheek and palate, leaving, as she had done, the lupus tubercles on the nose and cheeks and the ulcers on the lips uncured and without improvement.

I gather from Dr. Boissarie's writings as well as from J. K. Huysmans's book, *Les foules de Lourdes*, that it is not the custom for the doctors in attendance at the Bureau des Constatations to examine the pilgrims on arrival at Lourdes, nor, in fact, until the healing is in course of being accomplished, or after it has been actually effected; so that the registers do not contain reports made by the medical attendants from their own personal observation of the patients between the arrival of the patients at Lourdes and their first visit to the grotto. The reports by the patients of their own ailments and of the failure of all previous treatment, read in many instances like sombre fairy tales—they are related with so much emotion and often with ecstatic enthusiasm.

Comparison of Lourdes Cures with Cases met with in Ordinary Practice.

There are none of the magnificent manifestations of Lourdes which I have read of which could not be paralleled by cases in the practice of medical men of wide experience. The case of Mdlle. Lévêgne, claimed by Dr. Boissarie to be one of the most strikingly important ever seen at Lourdes, is easily explained by the escape during the woman's journey or just after her arrival of a fragment of necrosed bone from the inflamed, suppurating, and painful wound.

A case of immediate closure of "a sinus left after appendicitis" is a not uncommon surgical experience in connexion with the escape of a deep suture or ligature which has been keeping open a sinus following an operation, whether of appendectomy or for radical cure of hernia, or for one of many other conditions. The escape of the peccant loop of silk is very likely indeed to be overlooked unless close watch is kept for it, and both nurse and patient are surprised when on removal of the dressing the sinus is found healed.

The case of Mdlle. Rosarie Monnier, a young lady brought to death's door by starvation, is specially accentuated in Huysmans's description of Lourdes as being "une maladie de langueur" not due to any well-defined cause, because the sufferer had been abandoned by science and declared to be beyond the possibility of even the slightest relief. At length, after nineteen years of illness, she had a "sudden intuition that she would obtain her cure from the Immaculate Virgin if she went willingly to Lourdes." She went, and was instantaneously cured on the morning following her arrival, and just after receiving the Holy Communion at the chapel of the hospital of the "Holy Lady of the Seven Sorrows"—the hospital in which she had passed the night.

I am aware of a case which must be perfectly well remembered by a distinguished London physician still in practice, as well as by a member of the profession at Bournemouth, which, except for the youth of the patient and the much shorter duration of the symptoms, was remarkably like that of Mdlle. Monnier. This little girl, the spoilt child of loving and despairing parents, was cured within twelve hours after entering a nursing home in London, to which she was most unwillingly transferred, and where she was most reluctantly allowed to go by her parents.

In my own experience there have been several cases of hysterical or purposive deception, simulating real diseases, which were instantaneously cured, and which in their way are quite as remarkable as those we hear of from Lourdes and other shrines and sanctuaries.

A woman supposed to be hopelessly ill with a communication between her stomach and a dilated renal pelvis was immediately made well by our detecting her spitting finely masticated food into her urine. Another woman who was admitted into the Middlesex Hospital under my charge was supposed to be afflicted with cancer of the uterus and vagina. Her symptoms were discharge and pain, and actual perforation of recto-vaginal and vesico-vaginal septa. She had been ill for years; but she made a most rapid recovery after I removed a candle extinguisher from the upper part of her vagina. An unmarried woman living by herself with her servants had been for a long time the subject of a peculiar skin rash which had frustrated all treatment, and was a puzzling and unique case in the experience of the late Sir Erasmus Wilson. She recovered at once after being seen early one morning on a surprise visit from her medical attendant frictionizing her skin with a piece of pumice stone. Another young lady was sent to me with a chronic sore on her thumb. It had resisted scraping and every sort of medical treatment. One day she was caught hiding away a box containing the sticks of wooden matches sharpened to a fine point. She was charged—and confessed after indignant protestations at being suspected and accused—that she was keeping open this wound by irritating it with the pointed match stems. Her object had been to get away from home for treatment, as she was very unhappy with a newly made stepmother. She was terribly afraid of her fraud becoming known to her relations, and I promised to keep her secret unrevealed to others on condition she came to me in a week with the wound quite sound, and promised never again to make it sore. To the best of my knowledge, we have both been faithful to our vows up to the present time.

A charming and very handsome girl who craved to go on the operatic stage, but was opposed by her family in doing so, was very anxious to take lessons at the Conservatoire of Music. Consent not being given to this

scheme, she became afflicted with a troublesome and persistent sore throat. This excited sympathy, and she was, after a time, permitted to quit her "damp and relaxing" neighbourhood for a residence in Paris. At once, after this "change of air," she gave up applying carbolic acid to her tonsils and fauces, and her sore throat got rapidly and permanently well.

To these cases of feigned or self-induced disease I will add the mention of two cases of immediate recovery from real disease.

A woman absolutely at death's door, pallid and helpless from many repetitions of loss of blood, was admitted into my cancer ward at the Middlesex Hospital. I found the cause of her condition was not cancer, but a large uterine polypus with a slender pedicle and a surface black, roughened, and sloughy from the application of strong ferric astringents. For a day or two I feared even to have her moved on to the operation table. When I did so, and placed her in the lithotomy position, the polypus fell unassisted bodily to the floor, and from that moment she began to get well.

A man who for a long while had been suffering from chronic intestinal obstruction and haemorrhages was admitted into the Middlesex Hospital under me. He had previously been in two large London hospitals, and had been told by surgeons, one a very distinguished man only recently deceased, that he had malignant disease of the rectum, and must be operated upon. He had refused at each of these hospitals to undergo an operation. Colotomy had been the operation proposed to him at one of them. I found he was suffering from a large polypus of the rectum, and its removal at once completely cured him. Many times afterwards he visited the hospital to report himself to me, and was seen by my dressers and house-surgeons in excellent health.

I could add other cases if it were necessary, but those I have mentioned are sufficient, both in number and in character, I think, to justify my scepticism as to the miracles of Lourdes, and as to the remarkable cures there being due to the immediate and direct interposition of the Divinity.

Nor am I tempted to give up my unbelief because "the extraordinary facts of Lourdes" which were communicated to the Holy Father at Rome by Dr. Boissarie on the eve of the Jubilee of the Apparition of the Immaculate Virgin to the shepherdess Bernadette at Lourdes were investigated to the satisfaction of the "Curia," or Court of Inquiry of the Papal See, and thereafter received the seal and confirmation of "The Church."

Nor can I altogether, or even almost, persuade myself to forego forming an independent opinion about these cures, because I am assured on the authority of the Bishop of Tarbes that science has its limits, and that it is the mission of the Church alone to pronounce on the reality of miracles, after canonical inquiry has ascertained evidence of "the finger of God and the direct intervention of His power."

These episcopal ordinances which declare the miraculous nature of the Lourdes manifestations naturally arouse a desire to know somewhat of the history of the "Lourdes movement." By this way we shall be able to get a better idea of the real significance, the inwardness, of these performances at Lourdes.

History of Lourdes and Former Shrines.

"The apparitions of the Holy Virgin in our own epoch, such as that in the grotto of Massabieille at Lourdes, are not in any way surprising; Lourdes, in the history of France, is neither an exception nor a novelty. The Mother of Christ has looked upon that country as her own property ('fief'). At no time, save in the 18th century, has she disinherited it of her continuous presence; but if one thinks of the frightful baseness of the Bourbons and the inexorable infamy of the Jacobins this temporary abandonment is explained." So writes M. Huysmans in the eighth edition of his work above referred to.

Lourdes, in fact, is but a modern and the latest repetition of many similar manifestations which have been seen in Paris and in the provinces of France. Lourdes is the centre of a district in which were nine chapels, formerly the resorts of pilgrimages to the Madonna; and it stands surrounded by these ruined and now unfrequented sanctuaries "like a brilliant star surrounded by nine waning satellites." These chapels were built at different periods between the latter part of the fourteenth and the early part of the seventeenth centuries. The dates at which they ceased to attract pilgrims and became more or less ruins are lost in the obscurity of time. Some of the chapels were destroyed by the Huguenots, some were deserted on account of their inaccessible situations, some because of the cupidity and licentiousness of the neighbouring inhabitants, which "caused the Virgin to withdraw" from these places. And for this latter reason—the extortion and dissoluteness of some of the residents—it is predicted that she will in time retire from Lourdes also.

But this much about these chapels is sure: scarcely one of them in their day lacked any of the accessories of their successor on the banks of the Gave. Grotto, spring, shepherdess, and miraculous cures—all were theirs; but, above all else, there was at each of them the radiant presence and effulgence of the Virgin Mary.

Lourdes, therefore, is the resultant of the revivification by the Madonna of ancient devotions formerly so popular in other and neighbouring spots in the Pyrenees and in the French capital. In Paris in the fourteenth century an altar and a brotherhood under the name of the Immaculate Conception were instituted in connexion with the Church of St. Severin, to celebrate the spotless purity of the Virgin Mary. "This devotion was rewarded by the Virgin curing multitudes of sick persons who came, often from far away, to drink of the water of the wells at the foot of the statue. . . . But by degrees this devotion grew feebler and feebler, and Saint Severin ended by being a parish church instead of a sanctuary for pilgrims."

In the seventeenth and eighteenth centuries it was made a rendezvous of the Jansenists, and though dead as a shrine of the Virgin, it became a branch establishment of the cemetery of St. Medard, where the "Convulsionists" resorted to pray at the tomb of the Abbot Desanguis, the Deacon Confessor of Paris.

To-day the Virgin, if she still dispenses spiritual benefactions at St. Severin, has, it would seem, at any rate closed her "dispensary" for bodily ailments, and the wells have been closed up by the priests since the waters have been forsaken by the pilgrims.

In the fourteenth century the devotion to the Immaculate Conception was very marked in Paris, but onwards from the end of the Middle Ages it dwindled day by day; there was no longer any special shrine for the purpose, but her worship shifted about (*vivotait*) from place to place till in November, 1830, the Virgin suddenly desired to make a fresh start and spread abroad her influence, not only in Paris, but throughout the whole world. Then it was she appeared to Catherine Labouré in the chapel of the Sisters of Charity, in the rue du Bac, and commanded this sister of St. Vincent de Paul to have a medal struck wherewith to propagate the belief in the Virgin's immaculate origin.

About the same moment a voice spoke to the curé of the church of Notre Dame des Victoires, when he was celebrating Mass, and told him to consecrate his parish "to the very sacred heart of the Immaculate Mary." The effects were prodigious; the medal rapidly became celebrated for its miracles, crowds were drawn to the chapel in the rue du Bac, whilst on the other side of the Seine the hitherto empty church of Notre Dame des Victoires, situated in one of the most debased districts of the town, became filled to overflowing, and physical cures and spiritual conversions were achieved there in great numbers.

The special hyperdulia of Lourdes is a replica on a larger scale, and in a place accessible to the whole country, of the worship at Notre Dame des Victoires in Paris. Sixteen years after the apparition of the rue du Bac and the hearing of the voice by the curé of Notre Dame des Victoires, and twelve years before the apparition at Lourdes, the Virgin appeared to a little shepherdess at La Salette in the Alps. This was in 1846. There also a spring of water gushed forth and miraculous cures were wrought. La Salette, like Lourdes, was surrounded with ancient pilgrim chapels more or less ruined and extinct.

For a time La Salette had a wonderful name, but the bad roads, the difficult ascent to it, and the miscreant and scoffing Freemasons of the district led to its desertion, and the final blow was struck at it by the apparition at Lourdes at the base of the mountains instead of on the summit of a peak difficult to climb.

The Virgin appeared at Lourdes with a countenance smiling and radiant and as if she desired to be more easily approached—more within the easy reach of the people: and there she distributed benefactions with both hands.

This was quite different from the austerity and sadness of her apparition at La Salette, where she was seen weeping and threatening, and was heard censuring the vices of mankind, more especially those of the priests and the cloisters. At La Salette not a word was said by her about the spotless purity of her conception, and her blessings and benefits were dispersed in a far less liberal manner than afterwards they were at Lourdes.

At Lourdes, in 1858, the Virgin's words to Bernadette were distinct and emphatic: "I am the Immaculate Virgin. I desire a chapel here."

The Relation of Miracle Cures to the Doctrine of the Immaculate Conception.

Let us now consider briefly the bearing which the controversy about the Immaculate Conception had upon these shrines and chapels to the Virgin in Paris, the Pyrenees, and the Alps.

This dispute commenced in the twelfth century by the canons of the Cathedral at Lyons introducing into their church a festival in celebration of the Immaculate Virgin without consulting the Roman See. These canons are said to have learnt their special rite from a document communicated by the Virgin herself.

At once, a remonstrance and a critical argument ridiculing the doctrine was sent to the canons by Bernard of Clairvaux (St. Bernard). During the thirteenth century the Feast of the Conception became very popular, and in 1263 it was accepted by a general chapter of the Franciscans at Pisa, but without reference to the question of immaculacy; during the same century, however, all the leading theologians took the view of St. Bernard. Then in the early part of the fourteenth century came the categorical statement of the doctrine of the Immaculate Conception by Duns Scotus, the "subtle doctor of the Franciscans," and its denial by Thomas Aquinas, the learned Dominican—"the Dominican Aquinas" as he was called. But the doctrine was gaining ground, and in 1387 the University of Paris condemned one of its members because he taught that the Virgin Mary, like other descendants of Adam, was born in original sin; and the university expelled the Dominicans, who were fierce opponents of the doctrine of the Immaculate Conception. For several years the Dominicans were excluded from all the privileges of the university because of their continued refusal to acquiesce in its teaching.

It was at this same period, as we have just shown, that the pilgrim chapels in the Pyrenees and Alps took origin, and that the worship at St. Severin in Paris became especially associated with the Virgin.

In the beginning of the fifteenth century the University of Paris made subscription to the doctrine a necessary condition for its degrees; and various other universities entered into a compact to do all in their power to propagate it. But, on the other hand, at the end of the same century—namely, in 1483—Pope Sixtus IV published a Bull threatening with excommunication any one making charges of heresy against either the advocates or the impugners of the doctrine, for the reason that the point had not yet been decided by the Apostolic See.

In the middle of the sixteenth century (1546), the Council of Trent sought to effect a compromise between the Dominicans and Franciscans.

In the seventeenth century under the influence of the Franciscans and Jesuits in Spain, pictures were painted, statues erected, and persecutions set on foot in honour of the "Virgin conceived without sin"; and embassies were sent to Rome by Philip III and IV, to obtain more explicit recognition of the then popular doctrine. The Popes, however, continued to maintain an attitude of reserve. Pope Paul V in 1617 forbade all public disputation on the subject, and Gregory XV in 1622 went still further, and even prohibited private discussions, except in the case of Dominicans amongst themselves. This discouragement, or at least this lack of encouragement, of the doctrine of the Immaculate Conception had its effect on the pilgrimages; and consequently there commenced a little later the desertion and destruction of the pilgrim shrines to the Virgin, and the cessation of the miraculous cures at these special places in the Pyrenees and Alps. It was this lukewarmness towards or this indifference to the doctrine of the Immaculate Conception which in all probability led to these sanctuaries becoming neglected; and not "the appalling baseness of the Bourbons and the inexorable infamy of the Jacobins," which Huysmans assigns as the cause why the Virgin disinherited France during the eighteenth century of her beneficent presence.

But by degrees the papal view became more defined, and more in favour of the doctrine, and at length Gregory XVI (1831–1846) gave permission to several prelates to describe the Conception as Immaculate. And now it was that the Holy Virgin, who had never before mentioned the subject of her freedom from original sin, spoke in 1830, for the first time, of her prerogative in this respect when she revealed herself to Catherine Labouré in the rue du Bac, Paris.

Between his accession to the Holy See in 1846 and the year 1854 Pius IX made communications with the bishops inviting them to state how far the papal pronouncement in favour of the dogma would meet their wishes and the wishes of those under them. And as if to incline the priesthood to penitence and remorse, and to lead them in the direction desired, and to stimulate their attachment to the Virgin, La Salette—where the Virgin appeared with a weeping face and lamenting the vices of the priests—was founded in 1846, and its fame and its miracles were soon spread throughout the world. The replies to the Pope's address were in the great majority of instances declarations in favour of the dogma, and the result was that on December 8th, 1854, the Pope formally declared his approval of the doctrine of the Immaculate Conception before an immense congregation of cardinals, patriarchs, archbishops, and bishops assembled in St. Peter's at Rome. Meanwhile the nineteenth century itinerary of the Virgin, which began in Paris in 1830, and for a brief space made a halt at La Salette in 1846, was to find its ultimate destination at Lourdes on February 11th, 1858. It is to be noted that this date is four years after the declaration of the dogma of the Immaculate Conception by the Pope in St. Peter's had been solemnly announced, whereby the dogma was made an article of faith, and its denial declared to be heresy.

Then the Holy Virgin spoke out plainly to Bernadette in the grotto of Massabieille and said: "I am the Immaculate Conception." She had waited through all these centuries, through all the period of disputations in the Middle Ages; she had almost ceased to receive special devotions and to dispense her special benefactions in the seventeenth and eighteenth centuries whilst discussions were forbidden and the decision of the Roman See was held in suspense; and then, at last, she came to the front again with the revival of the discussion in the first portion of the nineteenth century. On former occasions it was "Mary conceived without sin," but now, after the head of the Holy Roman See had decided the question in her favour, she appeared in all the glory of her resplendent halo and absolutely identified herself with her prerogative "Immaculate." Then was the dogma of the Conception made manifest to all by the "events of Lourdes." Then the Lourdes miracles commenced.

It is obvious to any one who will follow the course of the dispute about the Immaculate Conception step by step with the history of the shrines and apparitions in Paris and the Pyrenees that there is a remarkable chronological relation between the vicissitudes of the doctrine on the one hand, and the popularity or otherwise of the worship and the accompanying performance of miracles at these shrines, on the other hand. With the rise and fall in favour of the doctrine of the Immaculate Conception rose and fell the number of pilgrimages and of miracle cures.

After 1854, it became heresy not to accept the doctrine; the people had to be instructed as to it; the well-to-do and educated could be otherwise informed, but the lower classes and the peasant ignorance had to be enlightened; and by what means could this be more strikingly accomplished than by appealing to the imagination and the superstition of these folks, through reports of apparitions, and by the emphatic declaration of the Virgin herself, "I am the Immaculate Conception"? And if, as the reward of the people's belief, these reports were followed by beneficent and miraculous cures of physical ailments, as well as by spiritual conversions, so much the more impressive and convincing would be the instruction of the Church. The events at Lourdes, it is said, hallow and confirm the instruction given by the Church. They tend to bring the dogmas of the Vatican into popular favour.

More recently we have heard of another instance of the

same sequence of events. In 1905 the Holy Father recommended "frequent communion," and this decree has been followed at Lourdes by "the multiplication of more brilliant cures in connexion with the Eucharistic procession, the Mass, the elevation of the Host, and the Holy Communion." Unmistakably "we find in this fact a response from heaven to the teaching of the Church."

We are told that at the present moment, in spite of the multitudes of pilgrims who pray there, only very few actual miracles are being wrought at the grotto; and that this is due to the great number of tourists who now go to Lourdes in automobiles from all the surrounding Pyrenean spas, prominent among whom are the forward and self-assertive English with "l'indigence de cervelle" (mark the word) "et de la misère d'âme de ces funestes snobs," etc. (Huysmans). The Virgin, displeased with the behaviour of the hale and hearty, withholds her benefactions from the sick and suffering! History thus proves to us that political and social events can disarrange the healing disposition of the Immaculate Virgin, as well as of the mesmerists. The automobile craze suspends the miracles of the one; the great revolution, as previously stated, put a stop to the activity of the other.

And if it be asked, "How came it about that the Alps and the Pyrenees, the dioceses of Bayonne and Tarbes, were so specially selected as the places at which these apparitions and miracles occur?" one is disposed to attribute the chief reason to the mountainous character of the country.

It is not entirely because the Holy Mary had always looked upon France as the country peculiarly her own (Huysmans); nor because on the other side of the Alps is the country which contains the apostolic capital of the world, and on the other side of the Pyrenees the country in which dogmatism, fanaticism, and superstition erected the Inquisition. Not entirely because France, Italy and Spain are the great Roman Catholic countries of the world, but chiefly, no doubt, for the reason that the inhabitants of the mountain districts are more impressionable to these manifestations. As Alison[1] in his remarks on the Tyrol states, "the grandeur of the mountain scenery imbues the minds of the natives with fear, and has caused the invention of many superstitious legends." It may be doubted if in the northern parts of that land so favoured of the Virgin the apparitions of herself would have taken the same hold on the imaginations of the French common people as they did upon the more imaginative and emotional inhabitants of the Pyrenees. Much might be said on this subject, but I must content myself by referring the reader to Buckle's *History of Civilization* (chap. ii, vol. i) for information as to the effect on the moral and religious character of the people of the physical conformation of the country in which they reside.

The Creative Lie.

One of the greatest social forces in almost every country and in almost every epoch is the creative lie. It is one of the most potent factors in the world. Alike with the educated citizen of a great city and with the ignorant peasants of a mountain hamlet, a mere statement forcibly advanced and plausibly supported at once becomes a belief. No question is asked. No doubt as to the truth of the announcement is raised. Thus, it is too often the case that to prefer a charge is to convict of an offence. "Give a dog a bad name and hang him" is an old apophthegm. A charge made, whether about a person or thing, is frequently taken as proven merely because it is rumoured. How many people have the faculty of being quite sure a lie is a truth if only it is repeated a number of times, even if the only persons repeating it are themselves! What multitudes prosper by the fabrication of the not yet true! How often the constructive rumour becomes the proclaimed belief! In Duguid's *History of the Stock Exchange* there is an interesting account of the "De Berenger Fraud" or "The Napoleon Hoax" of 1814.

In that year Government Funds had been heavily depressed by the success with which the French were withstanding the attacks of the Allied Armies. But on Monday morning, February 21st, 1814, the whole aspect of the Stock Exchange was suddenly changed by rumours, as vague as they were welcome, which reached the House, to the effect that the Allied Armies were in possession of Paris, that peace was assured, that Napoleon was slain. There was no official announcement, no authoritative foundation, only a certain amount of circumstantial evidence. This took the form of De Berenger himself, disguised as an aide-de-camp to Lord Cathcart, his gorgeous uniform wet with the spray of his cross-Channel voyage, scattering with his tidings napoleons—not sovereigns—at every stage of his journey, and showering amongst the eager and excited people, as he drove with his two accomplices in triumphal procession through the City of London in a carriage drawn by four horses and bedecked with laurel, papers announcing again the fall of Paris and the death of Napoleon.

The fraud caught on completely; omnium rose from 27½ to 33, and De Berenger sold out more than three-quarters of a million sterling of Government stock at a profit of about ten thousand pounds.

At length it was discovered that the rumour was false; omnium and Consols crashed back to their lowest figure, and the chagrin of the Stock Exchange at having been thus duped was, needless to say, extreme.

This is an illustration of the power and the effect of the creative lie. But we need not go back a hundred years for examples. "Rubber shares are in great demand!" "People are going in crowds to Somebody's to buy short skirts!" Only placard these statements thickly through the town, send out sandwich men, advertise widely in the press, and the eagerness for rubber shares knows no bounds; the demand for short skirts at the shop named becomes enormous, though previously the public had never heard of rubber shares, and Somebody had not a short skirt in their establishment. It is the same in political strife, and in actual warfare. A false belief of one day becomes the truth realized another. The false, but accredited rumour, "The enemy are beginning to retreat," if spread throughout the ranks, produces such an effect that the enemy actually do give way. The constructive look, and the suggestive sound, as well as the spoken lie, will equally bring about the not yet true.

The *bardit*, or war song of the Ancient Germans, Tacitus* tells us, inflamed their courage; and according to the intonation given to the tune these warriors made others tremble or trembled themselves. This musical strain was only a harmony of warlike sounds, we are informed, rather than a set of words.

The moral of these remarks is pretty obvious, and has a fairly wide application; and it certainly does enter into our thoughts when we read about faith healing and the miracles at Lourdes, as well as when we are thinking about other and more commonplace matters.

For example, there is a general impression that ladies should be in the fashion. The creative lie goes forth that hats 3 ft. broad from brim to brim are all the fashion, and immediately every hat shop in the town will lay in a stock, and the rumour will send people in crowds to buy these head gears.

It is a precept of the Church that "works" are the outward signs of what is proceeding in the Spirit. A doctrine is set forth in a Papal Bull; this is followed by "works" in the form of some wonderful recoveries at a certain shrine, and soon afterwards obedience in the acceptance of that doctrine by the people belonging to that Church becomes general. Who can prevent incredulous and sceptical folk irreverently alluding to those "cures" as an "exploitation of miracles"?

It is the universal wish to avoid the consequences of sin and evil; to be relieved of pain, and to escape death. It is widely promulgated that the way to attain these desired ends is fully explained in a volume entitled *Science and Health, with Key to the Scriptures;* and in thirty years the book claiming to give this instruction, though published at a preposterous price, passes through 200 editions and spreads its fallacies and falsities broadcast throughout a credulous world.

B. Christian Science Healing.

The other form of healing by religious suggestion prevalent to-day is Christian Science healing. Faith healing differs from Christian Science in not masquerading in senseless and meaningless metaphysics; in not asserting the non-existence, the nothingness, of matter; and in not discouraging the use of physical methods and materials as aids in the treatment of injuries and disease.

* "Sunt illis haec quoque carmina, quorum relatu, quem *barditum* vocant, accendunt animos, futuraeque pugnae fortunam ipso cantu augurantur; terrent enim trepidantve, prout sonuit acies. Nec, tam voces illae quam virtutis concentus videntur." Tacitus, *Germania*, III.

The "very heart of Christian Science" is said to be contained in the following "immortal sentence":

> There is no life, truth, intelligence, nor substance in matter. All is infinite Mind and its infinite manifestation, for God is All in All. Spirit is immortal Truth; matter is mortal error. Spirit is the real and eternal; matter is the unreal and temporal. Spirit is God, and man is His image and likeness; hence man is spiritual and not material.

In Christian Science healing, which is based upon "faith" in certain doctrines, the suggestion is that disease has no existence; that the individual who thinks himself ill or in pain is labouring under a false belief; that the only real being is God, the only reality the Divine Mind; and that "sin, sickness, disease, and death" are phantoms arising from an erroneous impression that there is such a thing as "life in matter."

The method of suggestion is both aural and telepathic. It is aural when the patient is spoken to, and emphatically assured that he is not ill, that the disease is imaginary, that God will not permit sickness. It is telepathic when the operator gives "absent treatment," which consists in repeating in thought the same or such like assurances; and when he sits, without speaking, but in concentrated thought, by the bedside of the patient.

The Christian Science healer, however, does not admit that his method is "suggestion," but asserts that healing consists in an increase of "spiritual force," whereby the Divine influence dispels the illusions associated with matter, which Mrs. Eddy calls "mortal mind"—illusions which she says arise from the false belief in the existence of a body. Throughout her writing she is perplexingly inconsistent, and is constantly referring to matter in terms of mind, and to mind in terms of matter.

It is really difficult to study Christian Science with patience and composure, or, indeed, without impatience and mental irritation. It is quite possible to read about the miraculous cures at Lourdes with toleration and even with interest, however incredulous one may be; but the reading and study of Christian Science are simply insufferable.

Nevertheless, Christian Science has been studied and analysed with calmness and ability, and its flagrant errors have been exposed (1) by Canon Scott Holland, from the point of view of its false Christianity; (2) by Mr. Stephen Paget, from the standpoint of its failures as a therapeutical power in sickness and disease; (3) by Miss Carta Sturge, from the metaphysical aspect; and (4) by Mark Twain, who has criticized it as a literary production written in third-rate English, full of glaring defects in expression and of unsoundness in argument.

Mark Twain's able analysis would have been even more telling than it is if there had been less of the music-hall wit in his criticisms, fewer slangy or colloquial Americanisms, and less intermingling of the "funny man" with the clearness and brightness and pungency of the eloquent and facile writer. He has brought into prominence Mrs. Eddy's literary incapacity; her meaningless sentences; her "intoxicated metaphor"; her want of consistency; her love of the dollar; her briskness in business; her inexorable rule over the mother church, the metaphysical college, and the ministers in all the branch churches; her punishment of those Christian Scientists who disobey her; and her assertion of infallibility and absolute authority, outstripping even the claims of Rome. Mark Twain's summary of her as a woman is "grasping, sordid, penurious, famishing for everything she sees—money, power, glory—vain, untruthful, zealous, despotic, arrogant, insolent, pitiless where thinkers and hypnotists are concerned, illiterate, shallow, incapable of reasoning outside of commercial lines, immeasurably selfish."

Nor does a perusal of Mrs. Eddy's biography lead one to think that Mark Twain is too severe in his estimate of Mrs. Eddy's character. Undoubtedly she writes with great swelling words of vanity. Confusion of thought is made worse confounded by diction. She expresses indistinct ideas in meaningless phrases, which, however, are calculated to give an impression of wisdom and knowledge to those who read without thinking, or who, being imperfectly educated, accept sound for sense.

The jumble and confusion in Mrs. Eddy's philosophy and the errors in her logic are well described by Miss Sturge, who points out how particularly mischievous in their practical results are the Christian Scientists' false conclusions from true premisses. She gives many illustrations of this vicious reasoning, as, for instance, Mrs. Eddy's use of such words as "life" in two senses, and her argument first from one sense and then from the other as suits her purpose. The reader untrained in logic, seeing the truth of the major premiss, unthinkingly takes for granted and swallows whole Mrs. Eddy's incongruous reasoning and inadmissible conclusion.

Mrs. Eddy's absolute denial of the reality of matter reminds one of what Byron said of the celebrated Bishop of Cloyne's scepticism concerning the non-existence of matter:

> When Bishop Berkeley said "There is no matter"
> And proved it—'twas no matter what he said:
> They say his system 'tis in vain to batter,
> Too subtle for the airiest human head;
> And yet who can believe it? I would shatter
> Gladly all matter down to stone or lead,
> Or adamant, to find the world a spirit
> And wear my head, denying that I wear it.
>
> Byron, *Don Juan*, Canto xi.

Space will not allow of further reference to either Canon H. S. Holland's essay or Mr. Stephen Paget's book. But I desire to comment on one side of Mrs. Eddy's mental organization which seems to have escaped the notice of her critics, and to have been entirely misrepresented by her admirers—namely, her natural temperament, or turn of mind.

The Importance of Temperament in a Propagandist.

The temperament of a writer or teacher is a matter of the greatest importance in appraising the sincerity and trustworthiness of his work.

Without consulting the writings of any of her hostile critics we can obtain from Mrs. Eddy's own writings and the biography written by her devoted and sympathetic admirer, Sibyl Wilbur, ample material for forming an opinion as to Mrs. Eddy's inherent character or temperament. She was a precocious, emotional, argumentative child, prone to use long words and sage grave sayings, which she had learnt by rote in her close companionship from infancy with her Scotch Covenanter grandmother, whose "dramatic tales of a land torn by religious dissensions for nearly a century" were poured into the eager ears of her little charge. Mary Baker (Mrs. Eddy's maiden name) was affected in her actions, and when 12 years of age began to hear "voices" and fancy herself "called" by her mother when she was not. At this tender age she contradicted and disputed with her father on religious questions so that he was led to say that "if Mary Magdalene had seven devils our Mary had ten." She showed herself to be a heartless and very unnatural mother by parting with her only child and fatherless son when he was but 5 years of age, allowing him to go to live a long way off with a spinster nurse who was about to get married. For seven years Mrs. Glover, as was then her name, never saw the child. She married her second husband, towards whom she professed indifference from the first, for the sake, we are told, of an independent home for herself and son. Not till three years after this marriage, however, did she go to see her son and have him to live in her house; and then only did she do so because of a mortgage on a property in which she and her husband were interested and which happened to be in the district in which the boy was residing with his nurse and her husband. After a brief interval the boy was sent back to his foster parents, who removed away into the Far West. Mrs. Eddy saw no more of her son after this for twenty-two years; neither did she communicate with him or he with her.

In 1888, when this son, then in his 47th year, proposed to come to her, she being then in her 70th year, Mrs. Eddy refused to receive him. It was said "Destiny still parted them with an insurmountable barrier." Nevertheless, at this very time she adopted a graduate of Hahneman Medical College, a homoeopathist, and a pupil of her own in Christian Science, who was five years junior to her own son. "This agreeable and accomplished man of 40 remained with Mrs. Eddy till 1895." She and he then had differences, and they parted; but Mrs. Eddy "did not however, erase him from her memory, for she yet speaks of him as her son." But with her own son she was shortly afterwards fighting lawsuits in equity respecting her property and his inheritance.

During four years before and eleven years after her second marriage she was an invalid "afflicted with a spinal

weakness which caused spasmodic seizures, followed by prostration, which amounted to a complete nervous collapse."

Sometimes bedridden, at others actively getting about even to "speeding up steps like a deer," then again being rubbed with alcohol and lifted in and out of bed, she was regarded by the ladies of her acquaintance as an acting invalid making her husband a martyr to her whims. Once she rang the bell, and immediately after was found by the servant who answered "lying rigid with foam on her lips." She was an accomplished actress, as was shown on two occasions when she succesfully hoaxed a female acquaintance with whom she was living. This friend was a Mrs. Crosby, a great believer in spiritualism, who was much attracted by the description given by Mrs. Eddy of her deceased brother, Albert Baker. So Mrs. Eddy one day, when sitting with Mrs. Crosby, suddenly leaned back in her chair, shivered from head to foot, closed her eyes, and began to talk to Mrs. Crosby in a deep, sepulchral voice, and purported to deliver a message from the spirit of Albert Baker. On the following day she again pretended to go into a trance, and directed Mrs. Crosby as to where she would find letters from the spirit, and which she herself had written and placed there. Mrs. Eddy, who boasted that she had no belief in spiritualism, made a complete dupe of her friend Mrs. Crosby, the spiritualist.

The greatest event of Mrs. Eddy's life was an accident which occurred to her in Lynn, and which has been called with various shades of meaning her "fall." This fall resulted in what has the semblance of having been another unmistakable hoax. As she was walking home with friends on February 3rd, 1866, she slipped on ice, and is said to have suffered "a concussion of the brain and spinal dislocation, with prolonged unconsciousness and spasmodic seizures as concurrent symptoms." On the third day after this fall "God said to her, 'Daughter, arise!'" and thereupon she got up from her bed quite recovered, and walked into the adjoining room, where her friends were awaiting her death. This was the most momentous occasion in her career. It was then that she caught from "the Divine Harmony a revelation of the Truth"; it was then the Bible miracles which before had seemed supernatural grew divinely natural and apprehensible; it was then she underwent "a cataclysmal upheaval," from which was to follow that "new understanding of Christianity which would shake the world's thought to its center"; it was then she "made the discovery of the principle of Divine Science," of "'*Christian Science mind healing*,' *and gave to the world in my work called* '*Science and Health*' *the leaves that are for the* '*healing of the nations*'"; and it was then she felt the hand of God laid upon her, and she learned the unique and powerful significance of the life which was before her. The sceptical surgeon with experience of concussion of the brain and dislocation of the spine might be Pyrrhonist enough to add that it was then also that Mrs. Eddy exhibited the deception of an impostor, the feigned illness of a malingerer, the tricks or "business" of an actress.

This "fall" and "miraculous recovery" were well timed. They happened about a month after Quimby's death, and when she could safely assert a claim to complete originality in the conception of her scheme of "science" without fear of contradiction from him.

From the date of her cure, when "Quimby may have allowed her to hypnotize herself with the thought that God was the 'Wisdom' which Quimby brought to his patients," Mrs. Eddy's mind was thoroughly under the influence of Quimbyism. This system of Quimby was, her biographer says, nothing more than "an excrescence on the natural growth of mental suggestion from Mesmer to the Nancy school."

In 1861 Mrs. Eddy corresponded with Quimby about her own health, and in 1862 she went to Portland, Maine, to be treated by him. He cured her instantaneously, and "set her free from the excruciating pain of years."

Quimby considered he had cured her in his usual way by imparting healthy electrical currents, together with his "Wisdom"; but Mrs. Eddy persistently would, through her "religious emotion engendered by years of suffering, ascribe to him a spiritual nature"; and she insisted that he had healed her "by virtue of his religious wisdom."

It would seem that jealousy of the success of some of her former pupils led her in 1872 to completely rid herself and her teaching of all relics of Quimby's influence, by repudiating mental suggestion and animal magnetism, and denouncing manipulation and all use of physical contact in the treatment of patients, as having no part or place in Christian Science healing. Many of her pupils, who by following her teaching had really been practising mesmerism, though some of them were apparently unaware of the fact, parted from her when she began to preach "the science of healing by soul power." They questioned the propriety of calling this treatment "Mind Science," "Moral Science," or healing by the Divine Spirit or by spiritual power, and they doubted the truth of the positions they were called upon to take up, as they were convinced they had been studying the "science of mesmerism." Even after she ceased to teach by lectures and writing only, and had published a complete statement of her system in her book, *Science and Health*, the first edition of which was published in 1875, Mrs. Eddy was still mistrusted by those who knew her best; and her unchristian-like conduct caused her to be deserted by many of her disciples. Eight of her former followers brought an indictment against her in 1881 for "frequent ebullitions of temper, love of money, and the appearance of hypocrisy," and declined to submit any longer to such leadership.

Mrs. Eddy had always a longing to create "an effect." She craved notoriety: she loved to cause a sensation in some way, whether by attacks of "hysterical grief" or otherwise. She was exacting in authority, grasping in power, and safeguarded her material interests by infrangible copyrights. Mrs. Eddy says: "Impelled by God to set a price on my instruction in Christian Science mind healing, I was led to name 300 dollars for each pupil for one course of lessons at my college." Nearly £60 is a startling sum for tuition lasting barely three weeks. But "a strange providence" led her to accept this fee!

Though she would have the world believe that she was inspired to write, and that her book was given to her as a revelation, yet she was for years without any clear idea as to what system of healing she would proclaim as her own. She had lived at more than one period of her life on intimate terms with spiritualists, and had, as we have seen, successfully practised spiritualism on her own account on at least two occasions. She had dabbled in homoeopathy; she had received personal instruction from, and possessed manuscript notes of the work and results of an out-and-out mesmerist; and she had learnt also from Quimby something about a system of healing on a principle of belief.

Mrs. Eddy claims to have instantaneously cured a form of blindness in a baby by simply taking the child in her arms and looking at it; yet she had in her domestic service for years a blind maid whom she did not cure, but to whom she behaved inconsiderately by making her walk six miles behind the conveyance in which she herself was travelling from Groton to Rumney on the occasion of their giving up their residence in the former place—the village church bells being tolled in derision as she and her second husband were departing therefrom.

Her first husband had died within a year of their marriage; her second husband, whose simplest attentions to her provoked, we are told, the jealousy of all other women, so universally was he in request by the fair sex, at length left her, and Mrs. Eddy obtained a divorce from him in 1873. In 1877 she made what she spoke of as "a spiritual union" by marrying, as her third husband, Mr. Eddy. Mr. Eddy was agent for a "sewing-machine concern," not in good health, and was spoken of by persons who knew him as "devoid of the true force of manliness." He consulted Mrs. Eddy about his health, she advised him to enter a new class she was forming, and, having read aright the submissive and conciliatory nature of his character, she married him "in the midst of the struggles of personalities" with several former pupils; and made him her agent and the guardian of herself "against the onslaughts of the envious and ambitious who pressed too closely with their human desires." Mrs. Eddy introduced her new husband to her class with an address, followed by a reading of the Bible. Then she expounded certain passages, whilst the students beheld their teacher and leader "with hands as ever outstretched to them with the spiritual gift to be transferred through them to the whole human race and to the age." "Mr. Eddy at this moment became simply one of them . . . he, like them must carry out her directions that the spreading of Christian Science should

not languish." In the year following their marriage Mr. Eddy, by a strange conspiracy on the part of some of Mrs. Eddy's old pupils and now professional enemies, was charged with murder. There was no foundation in fact for the charge; but the worry of it, and of the lawsuits in which Mrs. Eddy was engaged in connexion with plagiarism of her book, and plans which threatened "to wrest the leadership of Christian Science from its discoverer," caused Mr. Eddy to regard these attacks as "an exhibition of malicious animal magnetism" on the part of his wife's aggressors and competitors.

Now, after learning the character of Mr. Eddy, one is not surprised to read that he became convinced he was the victim of an affection caused by "the suggestion of evil," and that he was being poisoned by a suggestion of arsenical poison made by two of his hostile acquaintances.

He died of heart disease in 1882, and just before he expired he cried out: "Only rid me of this suggestion of poison and I will recover."

What are we to think of the founder of Christian Science, who neither alone, nor in conjunction with her afflicted husband, himself a Christian Scientist, could call effectively on the Divine Spirit, or successfully draw upon "spiritual force" to remove the impending fate—namely, death—which though elsewhere she says is an unreality, is yet about to carry off her husband by "an idea" of poisoning? And what is the meaning of her sneers at "suggestion," seeing she told the physician, whom she summoned in the last stage of the illness, that "she believed her husband was suffering from" the suggestion of arsenical poisoning, that she did not believe that his heart was defective, but *that he was suffering from suggestion*; and, later on, that poison mentally administered killed her husband? "Not material poison," she declared, "but mesmeric poison."

What are we to think of such a philosophy of disease and death? Of such a philosopher, who had told Quimby "the illiterate mesmerist, Quimby the blundering and stumbling reasoner," that the healing resulting from his hypnotic practice was in reality due to "his knowledge of God's law, his understanding of the truth which Christ brought into the world, and which had been lost for ages"?

It seems incredible that any one who has given thought to Mrs. Eddy's so called philosophy or science can have the least faith in her system of healing, her doctrine of treatment. We have seen from her own statements how many of her pupils did fall away and revolt from her teaching and pretensions, some of whom *went on practising* mesmerism.

One can no longer wonder at the absurdities of her philosophy, nor at the cruelty and folly of her Christian Science treatment of disease, after a study of her temperament and conduct. Her work was conceived in ignorance and vanity; reared in profane audacity, and the most presumptuous and selfish ambition; developed in deceit, disharmony, and strife; and culminated in hypocrisy, cupidity, and lust of power.

What a contrast there is between the miracles of healing related in the Gospels and the miserable travesties, failures, and tragedies of the Christian Science healing!

The cures wrought by Christ were instantaneous, complete, and perfect. The blind received their sight, the lame walked, the lepers were cleansed, and the deaf heard, the dead were raised up, and the poor had the Gospel preached to them. But there was no boasting of the wonders worked, no exploitation of the miracles performed. "Go and show John those things," but at the same time "see that thou tellest no man," were the injunctions given. In the case of the man of the country of the Gadarenes who called himself "Legion" because many devils were entered into him, instruction, it is true, was given to him to "return to his own house and show how great things God hath done unto thee." But we can understand that for the peace of mind of others there were special reasons why a person whose dwelling had been among the tombs, who had worn no clothes, and whom no man could bind, no, not with chains, should not go away with Christ, but remain behind "clothed and in his right mind," as a consoling witness that the unclean spirits had departed and were buried in the sea.

But the Christian Scientists, on the other hand, proclaim aloud at all their meetings their vanquishment of disease, as well as their victories over drunkenness, morphine, and immorality. They are incessantly making "triumphant assertions of the health and power" derived from their cult. Nor was there, in the case of the gospel miracles of healing, as I have specially pointed out elsewhere, rejection or neglect of physical aids either during or after the cure or the restoration to life. Jairus's daughter, for instance, was *taken by the hand* and told to arise; and when she arose Christ "*commanded to give her meat*," and her parents were charged "that they should tell no man what was done." But with Christian Science there is bungling, shilly-shallying, and worse. Relief is withheld, irreparable mischief is done, and life is lost through this misguiding and misguided "treatment."

Of Mrs. Eddy's own cases of reputed cures there is not one that I can find substantiated by reliable and independent evidence. Notwithstanding this, notoriety and publicity are courted, attention is attracted, men's eyes are drawn to the cures which are claimed, and Mrs. Eddy impiously asserts that God prepared her "during many years for the reception of a final revelation of the absolute principle of scientific being and healing." At the same time, it is asserted with blasphemous audacity that she rediscovered and applied the definite rules whereby Jesus Christ performed His miracles of healing sin, and disease.

Compared with the Lourdes craze, Christian Science is as a snare and a pitfall to a refuge and a haven of security. No deprivation of medical treatment, or of physical aids to comfort or relief is required by the former; no excuse for failure is sought in extraneous trifles to pacify or impose upon the disappointed pilgrims to the Grotto.

The Lives of the Founders of Great Religious Movements.

It is distasteful, indeed hateful, to write thus of any one, especially of a very aged woman. But it is not the woman as an individual but the founder of a sect, the "Pastor Emeritus" of a church, college, and community, the boasted author of "the greatest religious movement of modern times," whose character I have been examining and interrogating.

The lives of the founders of all the great religious movements of the past have been the subject of searching criticism and unsparing and rigorous investigation. The Buddha, Mohammed, and Mohammed's immediate successor have again and again been submitted to the fullest inquiry. The Founder of Christianity throughout His career on earth was exposed, and exposed Himself willingly, to constant interrogation and searching curiosity. Every part of His life was a befitting piece of a consistent and perfect whole. He came into the world to save sinners. He was manifested to take away our sins, and made "to be sin for us, who knew no sin"; and when towards the end of His mundane existence He asked of the Jews that boasted of Abraham being their father, "Which of you convinceth Me of sin?" though they sought to kill Him, they were unable to meet the challenge to bring any sin against Him.

Even Bernadette and the other little shepherdesses in the Pyrenees who saw the apparitions and were made the mouthpieces of the Immaculate Virgin instantly knew their mission; and youthful, simple, and unlettered as they were, set themselves immediately to discharge it. Having done so, they retired into the sanctity of the cloister, leaving the continuation of the work commenced through them to be carried on by a wily priestcraft and a wondering world.

But not so the apostle of Christian Science. Her "moral science" teaching was repudiated, her conduct was justly condemned, and she was abandoned by many of her disciples. She had floundered in and out of her depth without knowing what it was she was going to do. She had oscillated from one "ism" to another till at length she declared in favour of "arsenical poisoning by *suggestion*." But meanwhile, and thereby, she was reaping a rich harvest, and was garnering up a very considerable fortune.

"*Christian Science Lacks even Glowworm Luminosity.*"

The fundamental principle of Christian Science is the assertion of the unity which underlies the universe. "God is all." "The One in which everything has its reality is of the nature of Mind, Intelligence, Life, or Spirit." But this principle, though true, is not new. It underlies the speculative and scientific thought of 2,000 years and more. Philosophers and scientists in all ages have referred back their experiences to an underlying unity, whether they

have tried to find this Ultimate Unity in an Element, Number, or Idea.

But the only deduction Mrs. Eddy can make from this great principle is that, "God, Spirit being all," there is no such thing as matter.

The great invention of Christian Science is "mortal mind." By this phrase Mrs. Eddy means something untrue, unreal, something which has no existence. She calls "sickness and sinful humanity mortal mind—meaning by this term, the Flesh opposed to Spirit." The ills of the flesh, which are part of matter or "mortal mind," and as such are merely false ideas and non-existent, must be annihilated by the Divine Spirit, not by means of medicines presented by physicians. Healing will be accomplished by the "Supreme and only reality," for "the realm of the real is Spirit."

What a contrast to the Christian creed of the Creation is the World as described by the founder of so-called Christian Science! When darkness was upon the face of the deep and the Spirit moved upon the face of the waters the word went forth, "Let there be light and there was light"; and it was seen that the light was good, and was divided from the darkness. But when the author of *Science and Health, with Key to the Scriptures*, attempts to throw light upon the dark places of science and religion, she cannot supply us with even a glowworm luminosity.

Portia, when returning home to Belmont, after getting justice done to Antonio by outwitting Shylock, seeing a light burning in the hall of her house, exclaimed:

> How far that little candle throws his beams,
> So shines a good deed in a naughty world.

But Nerissa remarked in response:

> When the moon shone we did not see the candle.

And Portia answered:

> So doth the greater glory dim the less:
> A substitute shines brightly as a king
> Until a king be by.

From Mrs. Eddy's work no light is emitted. Her treatment of "The Fundamental Principle," "The Unity," is too bewilderingly unintelligible. Her vagueness and misconceptions exclude all daylight from her writings, and her philosophy affords no kind of illumination.

When common sense, not to say logical reasoning, steps in, it acts on Mrs. Eddy's metaphysics like Nerissa's moonshine or Portia's little candle, like the king on his substitute.

"*Faith Abounds without the Aid of Christian Science.*"

It is not within my purpose here to dilate upon the spiritual service which Christian Science is said to have rendered many souls by engendering within them the virtues of faith, fortitude, endurance, and self-control.

In any case, we have to set over against such service the terrible and fatal disservice Christian Science has dispensed in multitudinous instances by its cruel and heartless treatment of physical suffering and disease.

If Christian Science has done good in a spiritual manner to any one by arousing or increasing faith—and I am not prepared to deny that it has done this—so much the better, as this is at least something towards counterbalancing the enormous evils of its mistaken and criminally erroneous treatment of the body. But it is harmful to do evil even though some good may come out of it.

Fortunately, however, it has been permitted to us to learn the value, the comfort, and the helpfulness of faith without having to condone or acquiesce in the danger and absurdity of faith healing in its Christian Science garb.

Faith, indeed, is much; perhaps it is really everything to man. Happily, it was given to him ages before the atrocities of Christian Science were dreamed of.

A far better and truer way of explaining its action in mental affliction and bodily suffering may be gleaned from the following extract from Carlyle, with which I must bring to an end this lengthy but imperfect article:

"An inward force has been given to man whereby he is enabled to withstand the pressure of things outward. Obstruction abounded; but Faith also was not wanting. It is by Faith that man removes mountains: while he had Faith, his limbs might be wearied with toiling, his back galled with bearing; but the heart within him was peaceable and resolved. In the thickest gloom there burnt a lamp to guide him. If he struggled and suffered, he felt that it even should be so; knew for what he was suffering and struggling. Faith gave him an inward Willingness, a world of Strength wherewith to front a world of Difficulty. The true wretchedness lies here; that the Difficulty remain and the Strength be lost; that Pain cannot relieve itself in free effort; that we have the Labour and want the Willingness. Faith strengthens us, enlightens us, for all endeavours and endurances; with Faith we can do all, and dare all, and life itself has a thousand times been joyfully given away."[2]

References.

[1] *Europe*, vol. ix, pp. 79, 80. [2] Carlyle: Characteristics, *Essays*, vol. iii, p. 22.

REMARKS ON SPIRITUAL HEALING.

BY

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The cases of two patients from my private practice, who have been mixed up with faith healers, have come to the notice of the British Medical Association,* and that, I think, has led the Editor of the Journal to imagine that I have had a much larger experience of faith healers than really is the case. I only remember one other of my patients who belonged to a sect of faith healers (Note I), and I have not met with any number of persons, so far as I am aware, on whom the agency of faith has been employed for the cure of their disease.

On the other hand, I have always had an indirect interest in spiritual healing, for a member of my family is said to have the gift of healing by faith. We have supplied quite a number of clergymen to the Church of England, most of them of the very low Church. Many years ago I was informed by letter that one of these clergymen was endowed with such great and lively faith that he was able to cure the sick, and that he had actually cured two of his own household by anointing them and praying over them. I was asked to express my opinion on this very important matter, and I am sure it was expected that I should remonstrate and say it was nonsense or the effect of imagination. But I did not do so. I at once wrote to offer my congratulations and to express my pleasure, and to say that I saw many persons whom I could not cure, particularly persons afflicted with cancer, and that I should be delighted if my relative, the clergyman, would take over and cure the cases which were beyond my art. My disappointment may be imagined when I received a letter informing me that it was not given to him to cure other persons than those who also believed. From this I perceived that mutual faith was necessary, and, as I could not feel confident that I should be able to provide patients of so strong a faith as this, no further negotiations took place. I have, however, at rare intervals, held conversations with this clergyman on healing by faith, and the matter has often been before my mind, although I have never, until now, spoken or written on it.

It has always seemed to me that our profession has been disposed to take too narrow a view of spiritual healing. In the opinion of many medical men the cures are only effected on impostors who permit themselves to be cured, and on neuro-mimetics, who are cured of maladies which they have never had; and the persons who proclaim these cures, for the most part ecclesiastics, are either too ignorant to distinguish between real and feigned conditions of disease, or are themselves impostors, sometimes sometimes banded together deliberately to deceive the public, either for their own individual ends or for the benefit of the religious community to which they belong. In some of these communities the ecclesiastic is himself the healer, the only intermediary between the Almighty and the patient; in other communities the intermediary is a saint or virgin, and the ecclesiastic assists and encourages the patient to approach the intermediary

* British Medical Journal, 1909, vol. i., p. 1253. This case formed the substance of a leading article. The second case has not been published, but has been referred to a Committee of the Association. The patient died of cancer of the larynx in spite of an attempt at cure by spiritual means.

And, sometimes, the place of the ecclesiastic is occupied by a lay person of great faith and influence. Undoubtedly there are impostors and wicked persons among faith healers as there are among all other kinds of human beings, but I am sure there is not the least reason or excuse for branding every person who assists in spiritual healing, whether as patient or as intermediary, as a fool or a rogue.

In the first place, a little reflection will discover that there is a very wide and abundant material for spiritual healing. It is possible, with little difficulty, to mark out several groups of patients who may be cured by faith. In addition to the impostors and neuro-mimetics, there occur to me at least four other groups. Let me enumerate them all, and give an example under each heading.

I.

First, there are the deliberate impostors, who sometimes simulate disease so closely that they take the cleverest of us in. Of such a kind was a young lady whose stomach I opened some years ago for gastric ulcer. Not only had she suffered terrible pain and grown pale and meagre, but she had brought up blood on several occasions, once in the presence of a medical man, when she brought up a large quantity of it, and fell on the ground in a kind of swoon. The stomach was quite healthy, but her symptoms ceased from the time of the operation. I afterwards learnt that, some time previously, albuminuria had been suspected on account of certain symptoms which she presented. Specimens of her urine were examined. The quantity of albumen was so remarkable as to arouse the suspicion of the medical attendant, who had some of the urine brought him unknown to the patient. There was no albumen in it, and he also found that on the occasions when a large quantity of albumen had been present the patient had fetched an egg out of the kitchen. As such patients are believed to feign disease in order to secure sympathy, there is nothing more likely than that they should permit themselves to be suddenly cured by a miracle in order to secure still greater sympathy.

II.

Second, there is the large army of "sofa saints," (Note II), neurotics, and neuro-mimetics of every degree and kind. How easily some of these people lend themselves to a cure by faith! Many years ago I found a young woman in Mr. Callender's ward who was suffering from paralysis of one arm from a lightning stroke six months previously. The limb was well nourished, and had never been burnt. The window at which she was sitting watching the thunderstorm was closed and had not been broken, while the door of the room was shut. A single application of the battery after confidence had been imparted to her by the surgeon sufficed to immediately cure her paralysis. What an excellent case for cure by faith!

III.

Loss of function of nerves from shock and other influences. An old lady whom I saw some years ago told me that she had become stone deaf from the sudden horror of seeing her grandson fall in front of a passing train just as her own train was starting from the platform. It was not until some hours later that the boy was found to have escaped by having fallen between the metals. But she did not recover her hearing on the news. Six months later, however, it came back as suddenly as it had left her. Had she been on a pilgrimage to Lourdes at the time, what a splendid example of spiritual healing hers would have furnished!

IV.

Then there are the so-called reflex conditions of disease, such as asthma—true sickness for the sufferers, making life almost unbearable. Some of them are never cured and are scarcely relieved by any treatment. But there are cases having all the characters of severe asthma which are cured or relieved by a single application of the galvano-cautery to the nose or by the use of an inhaler for a few days. When a medical man claims to have cured nearly 200 cases of asthma out of 400 which he treated by the application of the galvano-cautery to an apparently sound mucous membrane, it is only reasonable to expect that some of these sufferers might have been cured as completely by faith without the cautery as by faith in addition to the cautery.

V.

Stiffness and serious impairment of power after accident. Such was the case of Anatole Desailly, a coalminer, who was seriously injured in April, 1898. When he arrived in Lourdes in August, 1899, he could scarcely drag himself along with the aid of crutches. He was being conveyed to the hospital in a little cart, when he suddenly leapt out of the cart, crying "Ça y est," and began to walk without crutches. A few days later he returned to his work as a coalminer. There seems not the least reason to doubt that, had any other strong influence than faith possessed him, he might have done what he actually did at Lourdes perhaps a year earlier, and have been at work within a few weeks or months of his accident. We are familiar with similar cases and cures, particularly after railway accidents. The impression produced on all observers when such a cure is instantaneous, and takes place in a town charged with the electricity of religious emotion, cannot be overestimated.

VI.

The disappearance of tumours, particularly of internal tumours. Such tumours disappear in persons who have not been treated by faith, but who have been condemned to death by the most capable surgeons. As a rule, the cure is slow, but, as we occasionally know to our chagrin, abdominal tumours disappear as if by magic. Here, again, is a case from Lourdes. Mlle. Victoire Bonnet, aged 30, brought a medical certificate to the effect that she was suffering from a tumour apparently situated at the level of the pylorus, which the doctor believed to be cancerous and, accordingly, incurable. At the tenth immersion in the pool she was suddenly freed from all discomfort, the tumour disappeared, and from that moment she remained cured of all her troubles. Three years later she presented herself at the Bureau des Constatations Médicales, to show that the cure was permanent.

Here, then, are four groups of cases, in addition to the impostors and neuro-mimetics, which afford material for any number of marvellous cures and miracles. The halt and maim walk, the deaf hear, the sick are made whole, and the cure is often instantaneous.

If the diseased condition has been simulated, it has been so skilfully done that we ourselves might have been deceived into believing it to be true disease. And in the other groups, in which there has not been what we regard as organic disease, the patient has been sick or in pain or disabled, and has, perhaps, been treated by many physicians in many lands without relief, when suddenly, or rapidly, complete relief has resulted under the influence of faith. When such cures take place in the presence of vast masses of people, although it may be possible to explain all the steps through which the emotion has produced the "cure," how can we be surprised that the people fall on their knees before God and bless His holy name for the miracle which He has wrought?

I defy any one to read Zola's story of the cure of Marie le Guersaint, written by a sceptic (Zola's *Lourdes*), without being moved by it and without feeling convinced that all the true Catholics who were present, priests and people, with the unhappy exception of the Abbé Pierre Froment, truly believed that Almighty God had been moved by the intercession of Our Lady of the Immaculate Conception to display His divine power by instantaneously restoring the health of the poor girl who had lain paralysed upon a couch for seven years. In the eyes of all who witnessed it, it was a miracle, for every medical man who had seen her had, with one exception, believed her to be suffering from a damaged spinal cord. There is therefore no excuse, in such a case as this or in ninety-nine out of one hundred cases which are cured by faith, to impute dishonesty and deliberate deception to the priests and people who proclaim such cures to be the work of God. From the little I have seen of the priests actively engaged in the grotto at Lourdes, I can feel no doubt that the most of them honestly believe that the cures which they have seen are genuine. I would no more think of accusing them of deliberate deception than I would accuse my own relative of it.

And, knowing his life as I have known it for nearly fifty years, I would as soon believe him to be guilty of forgery

or murder as of an attempt to impose on me by falsely representing the circumstances of a case in which he believes that he cured disease by faith. If he tells me that he has cured cases by prayer and anointing, I am quite certain that he thoroughly believes that he has done so.

It will be seen that only the sixth of the foregoing groups contains cases in which organic disease is likely to have been present. The large abdominal tumours which have been known to clear up either under the influence of faith or without it, are presumably inflammatory, not malignant; but they are solid masses, and may be classed as conditions of organic disease, although they belong to a class which may get well under many diverse treatments.

VII.

But I am prepared to go one step farther, and to suggest that every now and again a case of true organic disease may, perhaps, be cured by faith. I would base my argument on the knowledge we have gained from cancer research. We have learnt that certain mice are immune to cancer, and that mice which are susceptible to cancer may be rendered immune to cancer. We have learnt that cancer may disappear spontaneously in mice which are not immune; and we have learnt that mice may be so treated as to enable them to get rid of their cancerous tumours in the same manner as other mice get rid of them spontaneously. Our cancer researchers are striving to discover what there is in some mice which renders them naturally immune to cancer and what there is in other mice which enables them to get rid of their cancerous tumours. At present the investigations have not yielded any other result than a growing belief that the chemical constitution of the blood or lymph, or of the tissues of the body of mice which are immune to cancer, or spontaneously get well of it, differs in some unknown manner from the chemical constitution of the blood or lymph or tissues of the body of mice which are susceptible to cancer.

Of human beings we are not in a position to affirm that there are any individuals who are immune to cancer, although we do believe that this is so. On the other hand, there are individuals who spontaneously get rid of tumours which are authenticated cancers. Many such cases are on record, and I might quote them from medical literature, but I prefer to take one from my own practice.

Early in 1903 a gentleman, 75 years old, had an epithelioma of the lower lip removed in New Zealand. It recurred, and a second operation was performed six months later. Again the disease recurred, and the glands on the same side of the neck became enlarged. The lip and glands were removed in February, 1904. In the summer of that year he left New Zealand, came to England, and consulted me in September. There was no sign of recurrence. But in November the glands beneath the angle of the jaw at the extreme end of the scar were enlarged. I removed the contents of the anterior triangle of the neck, in which there were glands which were on the point of breaking down. In the following July (1905) there was disease on the posterior border of the sterno-mastoid muscle. With the assistance of Mr. Harold Simmons of Bournemouth I cleared out the posterior triangle, cutting away the muscle and most of the soft structures of the neck. But the disease was on the point of breaking down, and was adherent to the surrounding structures and even to the bone, so that I had to leave lumps of it here and there and to close the wound with the certainty that the patient could not live more than a few months. The wound healed by the first intention. Within a short time all that side of the neck down to the clavicle became swollen, full, and very hard. Dr. Simmons suggested that one more attempt should be made to clear away the remainder of the disease. But I would not consent, and pointed out to him that we had run very close to killing the old man at the last operation, and that the present conditions were much more unfavourable than those which we had dealt with. (This was in October, three months after the operation.) From that time matters began to improve. The induration gradually cleared up until not a trace of disease could be felt. And at this present time, nearly five years after the last operation, the patient is in perfect health. In this case there was no attempt at treatment, whether local, general, or by the influence of the mind. One naturally asks, then, what change took place in that man, and why did the change take place in him which rendered his body not only resistant to further extension of the growth, but even enabled him to get rid of the disease which had been left behind?

To those questions we have no answer ready. But it does seem certain that, after the last operation, the patient acquired a power of resistance which he had not previously possessed. And now I would ask whether it is not possible that such a power of resistance may, once in many thousand cases, be acquired under the influence of a mental condition such as strong faith? When we see the extraordinary influence which is exerted on the body, on its blood and tissues, by fear, by hope, by love—how, on the one hand, the individual fades and wastes and even dies; how, on the other hand, appetite is restored, sleep returns, the blood grows richer and redder, and a kind of resurrection of the body is effected—is it unreasonable to assume that this resurrected body may sometimes differ from the former body in some fine chemical changes which science is not yet able to measure or even to discern? And, if this can be induced by other states of the mind, why not by faith?

I have attempted to formulate this idea, not only to explain the occasional cure of organic disease under the influence of faith, but to explain the cases which are now and again cured by remedies which come into fashion for a while, then lose their support and are lost sight of (Note III). How many of these remedies I have seen for cancer in the course of the last thirty-five years. Chian turpentine, thyroid extract, cinnamon, trypsin, electricity, Count Mattei's treatment, and I know not how many more. The renown of more than one of them has depended on the cure of a single case of cancer which had, perhaps, been diagnosed by an eminent surgeon. In my earlier days I formed the opinion at once that the eminent surgeon had been mistaken in his diagnosis. And that may have been so in some of the cases. But in other cases the diagnosis has been proved by microscopical examination, and by general conditions which have left no room for doubt. Upon that the same treatment is tried again and again, by many persons, including the one person who had the successful case. But the remedy seems to have lost its charm; there is no repetition of success, and the cancer cure sinks slowly into oblivion. But how is the one successful case to be explained? Did the remedy chance to produce that change in the body of the patient the nature of which our cancer investigators are trying to discover, which rendered it capable of resorbing its cancer and made it immune to another attack of the same variety of cancer? For the present the question must remain unanswered.

It will be inferred, from what I have said, that I believe in spiritual healing; or, to put it in other words, that people are cured by faith. But I am not an advocate for the treatment. It is too capricious, too uncertain. I do not know whether there are any statistics of the proportion of the cured to those who attempt to be cured by faith. I scarcely think there can be. From our point of view, they would not be very reliable, and, from the public point of view, I have an impression they would be very disappointing. At the present moment, in the Western world, the great centre of spiritual healing is in France, at the town of Lourdes. Immense numbers of pilgrims, well and sick, sound and unsound in body or mind, flock to the town in the Pyrenees every year. Lourdes is the metropolis of spiritual healing, and has maintained its supremacy for more than fifty years. So far as I can judge, the results, whether estimated in quantity or quality, are cruelly inadequate. The doctor at the Bureau des Constatations Médicales informed the Abbé Pierre in Zola's *Lourdes* that the proportion of cured to uncured is about 10 per cent. I suspected that Zola would be more likely to represent a low proportion than a high one. But I doubt if he has not overrated it. For in the Chanoine Rousseil's *The Glories of Lourdes*, published last year,* he says that "on an average, 1,500 cures are entered annually in the Register of the Bureau." There must surely be many more than 15 000 persons who visit Lourdes each year in search of healing.

So far as quality is concerned, the most celebrated case is

*Translated by the Rev. Joseph Murray, p. 259. Washbourne, Ltd.

still that of Pierre de Rudder (Note IV), which occurred five-and-thirty years ago, but which was again the subject of an inquiry in 1907–8, made for the purpose of establishing it on a firm base as a miracle. If this be one of the most convincing cases, and the proportion of cures as small as would appear from the Catholic publications, it is certain that a modern hospital which could not make a better showing would not be able to live if it depended on its success for its voluntary contributions.

Why is it, then, that the belief in spiritual healing continues to be so strong in the face of such depressing results? There are many reasons.

To believe is to exhibit great faith; great faith is not common, and those who have it not respect and admire those who do possess it. It is a sign of sanctity, certainly not a sentiment for a religious person to be ashamed of.

Spiritual healing offers a hope to the people whom we are not able to heal. And if one of these people by chance recovers, there is naturally much joy at our expense.

The facts relating to the proportion of those who are cured by faith are not known to those who might be interested in them.

People "love," as my master Sir James Paget said, "to be cured with a wonder."[1] And he pointed out that the cured case is noised abroad, while the persons who have not been cured are not disposed to publish their misfortune or their folly.[2]

Our diagnoses are often distorted, not intentionally, but from ignorance, so that the cure of an incurable or scarcely curable disease may be recorded under an error. We all of us know from statements which patients make to us of what has been said to them by other medical men, or even by ourselves, what absurd ideas may result from the impression which our diagnosis may make upon them. The case related in our JOURNAL is an example of an error of this kind. And here is another example. It has happened to me twice, certainly, to operate for tumour of the breast on a nun in a Roman Catholic convent. In one of those cases I could not be quite sure of the diagnosis, but I said that I believed that the disease was not malignant. Now, during the operation the Mother Superior and one of the nuns remained in the operating room and prayed earnestly all the time. When I told them that the disease was a deep-seated cyst and was not malignant, they cried out with joy and thanked the Almighty that He had heard their prayers. And I have no doubt, whatever I might say to the contrary, that these devout ladies think that the disease, owing to their prayers, was transformed from malignant into innocent during the actual performance of the operation. And I have no doubt that this is the view which the convent held, and that it was taught to all the young ladies who were educated by the nuns.

I could give many other reasons for the popularity of spiritual healing, such as the relief from the necessity of dieting and medicines and local applications; the possibility of a sudden cure and instant relief from all discomfort; the pleasure of acting in opposition to the orders of our profession, which is apt to be a little dictatorial at times. But I have already given far more reasons than are necessary, and I would only point out one advantage which the faithful have over our profession. We can explain, and do explain, many of the spiritual cures, but we cannot explain them all. No doubt, there is an explanation for every one of them, but we are sometimes at a loss to find the explanation of the individual case. Nor is this surprising. For every medical man of large and long experience must have seen patients recover who, according to our laws and theories, ought not to have recovered, and he often finds it quite impossible to explain, even to himself, the reason. There has been no change of treatment, no question of faith, but when matters seemed at their worst and everyone had given up hope, the patient has slowly or suddenly begun to mend and continued to do so to complete recovery. We can no more explain such cases than we can explain some of the cases of spiritual healing. We are obliged to accept them as facts, but we are unable to explain them. The faith healer is under no difficulty in the presence of such cases. He not only accepts the fact, but has a ready explanation of it—that it is an evidence of the existence of a superior being, and is a manifestation of a power and wisdom infinitely superior to our own. The stranger and more improbable the cure, so much the greater glory to God.

And now I ask myself whether I am to join a crusade against spiritual healing, whether I am to sally forth, armed cap-à-pie with the armour of science and reason, to suppress belief in cures by faith. I think not. If the question were whether the world is to be guided by reason or by faith, and I had to make the choice, I should certainly throw in my lot with reason. Or, if I thought the world would be better for the destruction of the Christian religion, I should cry "Away with miracles and cures by faith." Or, if the belief in miracles and cures by faith were an essential part of the Christian religion, I should protest against such tyranny. But it certainly is not so in the Protestant Church. And an Italian lady, a Roman Catholic, whose sister is the Mother Superior of a convent, has often told me that belief in the miracles and cures of the Middle Ages and of modern times is not essential. It is good for those who have it, but the absence of it does not imperil the salvation of the soul. Knowing as I do how the belief in cures by faith is bound up with religious belief in the minds of many truly devout and excellent persons, and that the breaking or the shaking of it might weaken the very foundation of their belief in God, I am not disposed to war against it, but to let it be, believing that the world is none the worse, but distinctly the better, for religious beliefs which tend to make men and women kinder, less careful for themselves and more thoughtful for others—which make them, in truth, better men and women than they otherwise would be.

NOTES.

NOTE I.—This case is worth recording, to show how strong the belief in spiritual means is imbedded in the minds of some persons. Some years ago one of my medical friends told me that I should probably be consulted by a lady who was one of his connexions, and who was a member of the Christian Science sect. I had not heard of the sect before, and questioned him regarding it. Two days later a tall, well-looking, and elegantly-dressed woman came to see me. When she removed her hat and turned back the locks which hung down over her forehead, I was shocked and disgusted to see that she was suffering from tertiary ulceration, that there was no dressing on the sores, and that her hair was actually matted with the foul discharge. There was similar ulceration of the scalp. When I had examined her, we both sat silent. She was the first to break the silence, saying, "Well, I was quite sure, before I came here, that you would not be able to cure me. What they have not been able to do in Wales and in America (where she had been) you will not be able to do." I replied, "You are quite right. I cannot cure you. For, knowing what I do of you, I am sure you will not do what I tell you." "If I did," she said, "it would be all the same." "No," was my reply, "for I can certainly cure you if you will do what I tell you to do." She considered for a moment, then accepted the challenge.

A fortnight's course of potassium iodide and a simple application to the sores made a different woman of her. She persevered in the treatment until she was quite well, and I thought she had learned her lesson so that she would have the good sense in future to try orthodox treatment, in the first place at least. It must have been between two and three years later that I learned that she was lying very ill in the house of a friend some twenty miles from London. I was told that she dragged one leg, was very weak, frequently sick and suffering from severe giddiness. But with the onset of her illness she had again placed herself under the care of some of the leading persons of the Christian Science sect. I was asked to go down and see her, but there was grave doubt whether she would consent to see me. As a matter of fact she was delighted to see me, and once more recovered under large doses of potassium iodide.

NOTE II.—"Sofa saints." I do not know who invented this name for some of the neuro-mimetic patients, but the first time I heard it used was at the Children's Hospital. I was registrar, and Mr. (Sir Thomas) Smith was surgeon to the hospital. When he came into the female ward one morning he found there a girl, about 9 years of age, who was lying on her back apparently fast asleep. I told him she had been lying thus, with her eyes closed, so far as I could ascertain, for a period of two years, and that she could not be wakened. After examining her attentively for some minutes, he drew me away from the bed, and

laughing after his fashion, said, "Why, Butlin, she's a sofa saint."

Note III.—Two cases are worthy of mention under this paragraph. A great many years ago, during the enthusiasm in favour of Chian turpentine as a cure for cancer, I was consulted by a gentleman who was nearly cured of a cancer on each border of the tongue. The disease had been diagnosed by Sir James Paget and other distinguished surgeons of the day. He had placed himself under the care of Dr. Clay, and he told me he had taken Chian turpentine and Canada balsam until his feet and hands and face swelled, and he was stupefied. The swelling of his feet was such that he could not put on his boots. In fact, he seemed from his description to have suffered from a temporary condition resembling myxoedema. But the ulcers of his tongue began slowly to mend under the treatment, and, when I saw them, they were on the road to rapid recovery. And this patient did recover. Of course, the diagnosis of cancer may have been erroneous.

The other case was that of a lady whom I never saw myself, but an account was given me of it by an old friend in general practice. It was in the days when thyroid extract was in favour, and he tried it in a case of recurrent cancer of the breast, where there were ulcerated plaques in the skin, and the diagnosis had been confirmed by microscopical examination. He pushed the administration of thyroid extract until the patient was so ill from it that he feared that she might die. But when she had reached that state her cancer began to get well, and continued to do so under less vigorous doses of thyroid until she quite recovered.

It will be observed that in both these cases the medicine was pushed until it produced a very extraordinary effect upon the health of the patient. A repetition of the same tactics has not been attended with success in the case of either remedy. Certainly not with thyroid, for I have pushed it in the treatment of hospital patients (where I could be sure that what was ordered was taken) as far as the safety of the patient would permit.

Note IV.—Pierre de Rudder suffered from inability to rest his weight upon his leg and from necrosis and discharging sinuses, following upon a compound fracture sustained in the year 1867. He was treated by various medical men in the course of the next eight years, but the sinuses remained still unhealed and he was not able to use his leg to much purpose. In the year 1875 he went, not to Lourdes itself, but to the Sanctuary of Notre-Dame de Lourdes at Oostacker-lez-Gand, where he bathed. Suppuration is said to have ceased at once, the wounds suddenly closed, two cicatrices formed, bony consolidation was performed without the formation of a callus and without shortening or vertical deviation. Even if this case were accepted, it is but a poor exhibition compared with what might have been expected. One cannot but ask whether this is the best which so powerful an intercessor as Notre-Dame de Lourdes can show in the course of half a century. Its importance in the minds of the faithful is shown by the appointment of a Commission in 1907 for the purpose of sifting the evidence, and by the fact that the canonic judgement of the Bishop of Bruges (Monsignor Waffelaert) declared to the world in 1908 that the cure was "miraculous." The case is all published in the *Journal de la Grotte* (Dimanche, Août, 1908), during a visit which the Bishop was making to Lourdes, and the faithful were, I know, very much rejoiced at the decision. I would almost desire to believe the miracle myself, but there are certainly two grave defects in the evidence. There is no evidence to show whether the bones united in the first months after the accident; all that is said is that Pierre could not bear upon the leg. And the last medical examination of his leg was made nearly three months before the cure took place. Had there been clear evidence of non-union of the fracture up to the time of that examination, or had the limb been examined by an impartial medical witness within two or three days of the cure, the case would bear a very different aspect.

In the *Journal de la Grotte* this case is spoken of as "la plus célèbre de toutes les guérisons dues a l'intercession de Notre-Dame de Lourdes."

References.

1 *Clinical Lectures and Essays*, second edition, p. 98. London, 1879.
2 Ibid., p. 88.

THE FAITH THAT HEALS.

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Nothing in life is more wonderful than faith—the one great moving force which we can neither weigh in the balance nor test in the crucible. Intangible as the ether, ineluctable as gravitation, the radium of the moral and mental spheres, mysterious, indefinable, known only by its effects, faith pours out an unfailing stream of energy while abating nor jot nor tittle of its potency. Well indeed did St. Paul break out into the well-known glorious panegyric, but even this scarcely does justice to the Hertha of the psychical world, distributing force as from a great storage battery, without money and without price to the children of men.

Three of its relations concern us here. The most active manifestations are in the countless affiliations which man in his evolution has worked out with the unseen, with the invisible powers, whether of light or of darkness, to which from time immemorial he has erected altars and shrines. To each one of the religions, past or present, faith has been the Jacob's ladder. Creeds pass; an inexhaustible supply of faith remains, with which man proceeds to rebuild temples, churches, chapels, and shrines. As Swinburne says in that wonderful poem, *The Altar of Righteousness:*

God by God flits past in thunder, till his glories turn to shades:
God to God bears wondering witness how his gospel flames and fades.
More was each of these, while yet they were, than man their servant seemed:
Dead are all of these, and man survives who made them while he dreamed.

And all this has been done by faith, and faith alone. Christendom lives on it, and countless thousands are happy in the possession of that most touching of all confessions, "Lord! I believe; help Thou my unbelief." But, with its Greek infection, the Western mind is a poor transmitter of faith, the apotheosis of which must be sought in the religions of the East. The Nemesis of faith is that neither in its intensity nor in its effects does man find any warrant of the worthiness of the object on which it is lavished—the followers of Joe Smith, the Mormon, are as earnest and believing as are those of Confucius!

Again, faith is the cement which binds man to man in every relation in life. Without faith in the Editor of the Journal I would not have accepted his invitation to write this brief note, and he had confidence that I would not write rubbish. Personally I have battened on it these thirty-six years, ever since the McGill Medical Faculty gave me my first mount. I have had faith in the profession, the most unbounded confidence in it as one of the great factors in the progress of humanity; and one of the special satisfactions of my life has been that my brethren have in many practical ways shown faith in me, often much more than (as I know in my heart of hearts) I have deserved. I take this illustration of the practical value of the faith that worketh confidence, but there is not a human relationship which could not be used for the same purpose.

And a third aspect is one of very great importance to the question in hand—a man must have faith in himself to be of any use in the world. There may be very little on which to base it—no matter, but faith in one's powers, in one's mission is essential to success. Confidence once won, the rest follows naturally; and with a strong faith in himself a man becomes a local centre for its radiation. St. Francis, St. Theresa, Ignatius Loyola, Florence Nightingale, the originator of every cult or sect or profession, has possessed this infective faith. And in the ordinary everyday work of the doctor, confidence, assurance (in the proper sense of the word) is an asset without which it is very difficult to succeed. How often does one hear the remark, "Oh! he does not inspire confidence," or the reverse! How true it is, as wise old Burton says: "That the patient must have a sure hope in his physician. Damascen, the Arabian, requires likewise in the physician himself that he be confident he can cure him, otherwise his

physic will not be effectual, and promise withal that he will certainly help him, make him believe so at least. Galeottus gives this reason because the form of health is contained in the physician's mind, and as Galen holds confidence and hope to be more good than physic, he cures most in whom most are confident"; and he quotes Paracelsus to the effect that Hippocrates was so fortunate in his cures not from any extraordinary skill, but because "the common people had a most strong conceit of his worth."

Faith is indeed one of the miracles of human nature which science is as ready to accept as it is to study its marvellous effects. When we realize what a vast asset it has been in history, the part which it has played in the healing art seems insignificant, and yet there is no department of knowledge more favourable to an impartial study of its effects; and this brings me to my subject—the faith that heals.

Apart from the more specific methods to be dealt with faith has always been an essential factor in the practice of medicine, as illustrated by the quotations just given from Burton. Literature is full of examples of remarkable cures through the influence of the imagination, which is only an active phase of faith. The late Daniel Hack Tuke's book, *The Influence of the Mind on the Body*, is a storehouse of facts dealing with the subject. While in general use for centuries, one good result of the recent development of mental healing has been to call attention to its great value as a measure to be carefully and scientifically applied in suitable cases. My experience has been that of the unconscious rather than the deliberate faith healer. Phenomenal, even what could be called miraculous, cures are not very uncommon. Like others, I have had cases any one of which, under suitable conditions, could have been worthy of a shrine or made the germ of a pilgrimage. For more than ten years a girl lay paralysed in a New Jersey town. A devoted mother and loving sisters had worn out lives in her service She had never been out of bed unless when lifted by one of her physicians, Dr. Longstreth and Dr. Shippen. The new surroundings of a hospital, the positive assurance that she could get well with a few simple measures sufficed, and within a fortnight she walked round the hospital square. This is a type of modern miracle that makes one appreciate how readily well meaning people may be deceived as to the true nature of the cure effected at the shrine of a saint. Who could deny the miracle? And miracle it was, but not brought about by any supernatural means. I had the good fortune to be associated for five years with Weir Mitchell, and saw much of the workings of that master mind on the sisters of Sir Galahad and the brothers of Sir Percivale, who flocked to his clinics. His extraordinary success, partly due to the rest treatment, was more largely the result of a personal factor—the deep faith the people had in his power to cure. And it is in this group particularly that the strong man armed with good sense, and with faith in himself, may be a power for good. And the associations count for much. Without any special skill in these cases or special methods, our results at the Johns Hopkins Hospital were most gratifying. Faith in *St. Johns Hopkins*, as we used to call him, an atmosphere of optimism, and cheerful nurses, worked just the same sort of cures as did Aesculapius at Epidaurus; and I really believe that had we had in hand that arch-neurasthenic of ancient history, Aelius Aristides, we could have made a more rapid cure than did Apollo and his son, who took seventeen years at the job!

Outside the profession faith has always played a strong rôle as a popular measure of cure. There are at present four plans, all of which illustrate phases of an old-time practice.

1. In England a small sect, the Peculiar People, carry out a consistent gospel system of faith healing. A pious, simple folk, only heard of when in collision with the law of the land, they base their belief on the plain sayings of Scripture, "Whatsoever ye shall ask in My name," etc. The prayer of faith is all they need, and in consequence, when one of their number dies, there is an inquest, and someone is sent to prison for criminal negligence. One of the recent cases was very pathetic, as both father and mother expressed the most touching confidence that what God willed was best for their child with scarlet fever, and what they asked in prayer would be granted. This primitive Christian attitude towards disease has never lacked adherents in the Church, and mediaeval literature is full of illustrations of a practice identical with that of the Peculiar People.

2. The Christian Church began with a mission to the whole man—body as well as soul—and the apostolic ministry of health has never been wholly abandoned. Through the Middle Ages the priests had care of the sick; many of the most distinguished physicians were in holy orders, and even after the Reformation in this country much of the ordinary medical practice was in the hands of the clergy. But the most characteristic development of Christian faith healing has been in connexion with certain saints and shrines. The early Church found the popular belief in Aesculapius so deeply engrained that many rites of the temples were deliberately adopted, such as incubation and the practice of votive offerings. The temple sleep, in which methods of cure were suggested in dreams, was continued until recent times, and indeed has not yet been abandoned. Certain saints had special powers—St. Cosmas and St. Damian became the patrons of surgery; St. Antony and St. Vitus had well known virtues. Belief in the healing power of relics became universal. The Reformation made a small section hostile, but a large majority of all Christians still believe strongly in the power of the saints to cure disease. The votive offerings which cover the walls of many Catholic churches on the Continent, accompanied with grateful inscriptions, are modern counterparts of the old practice in the Aesculapian temples. Miracles are still as common as blackberries, and new saints and new shrines are in active manufacture. The process may be studied in the history of Bernadette Soubirous, the 14-year-old ecstatic, who fifty years ago had visions of the Virgin at Lourdes, now the most popular faith resort in Europe. The cures are often genuine, and the miracles are of the same kind and as well attested as are those of Epidaurus. More people, it is said, frequent Lourdes than all the hospitals of France, and the same is true in Canada of the most popular shrine of the New World—St Anne de Beaupré. In the English-speaking world and in Germany faith has been chilled by the Reformation, and even among Catholics this mode of healing is not much in favour. I do not know of a single popular shrine in the United States, the country of all others in which Roman Catholicism presents the most rapid development. In England there has not been an active medical saint for 300 years.

3. History repeats itself, and we are to day deep in the throes of an intellectual change quite as striking as that which came over the Graeco-Roman world when disbelief in the gods, started by the philosophers, filtered into common life. Men sought other resting places, some with Zeno and the Stoics, others with Epicurus, while thousands remained in the misty mid-region of uncertainty. The cults which had ministered to the religious wants gradually lost their hold on the people, while the new sects appealed chiefly to the intellectuals. Christianity came, and, winning its way from below upwards, swept away many cults, absorbed others, and gradually destroyed the sects. Once again old beliefs are in the melting-pot. Modernism, the culmination of the spirit of the Renaissance, has changed the fundamental aspects of humanity, and the new wine in the old bottles has had the usual effect. A great gulf has opened between pastor and flock, and the shepherdless sheep at large upon the mountains have been at the mercy of any one who could pipe new tunes. One result of this intellectual and spiritual unrest is of great practical interest to us as physicians, and of still greater interest to all students of psychology. A new cult has arisen, attractive and aggressive, unlike in many ways anything hitherto seen. It was only natural (and the punishment fits the crime!) that such a cult should come from the United States, the country which possesses a larger number of separate sects than any other in the world. That the founder should be a woman profoundly ignorant of theology and of science, without, indeed, a single bond between the professors of the one or the practice of the other, was in itself a favouring element. A disciple of an American spiritualist, Mrs. Eddy had one strong conviction—the paramount importance of the things of the spirit. Never before in a history surcharged with examples of

credulity has so monstrously puerile a belief been exploited. To deny the existence of disease, to deny the reality of pain, to disregard all physical measures of relief, to sweep away in a spiritual ecstasy the accumulated wisdom of centuries in a return to Oriental mysticism—these, indeed, expressed a revolt from the materialism of the latter half of the nineteenth century at once weird, perhaps not unexpected, and, to a student of human nature, just a bit comic. One cannot but smile to think that this has happened at the very time when the Goddess of Reason was priding herself on the brilliancy of the accomplishments of her devotees! It is, indeed, a salutary lesson in humility, and serves to remind us that our deliciously credulous human nature is still plastic and receptive. To some a sign of decadence, to me the growth of Christian Science and of Mormonism are among the hopeful indications that we are in the childhood of the race. Only in the welter of a new world, untrammelled by a past, and by regard for authority, among a keen people too much absorbed in business to work out for themselves any mental salvation could such a chaotic mass of rubbish have had any measure of successful acceptance. And, as I said, the punishment fits the crime. For generations the people of the United States have indulged in an orgie of drugging. Between polypharmacy in the profession, and quack medicines, the American body had become saturated *ad nauseam*, and here indeed was a boon even greater than homoeopathy! No wonder the American spirit, unquiet in a drug-soaked body, rose with joy at a new Evangel. In every county there were dyspeptics and neurasthenics in sufficient numbers to demonstrate the efficacy of the new gospel! But the real secret of the growth of Christian Science does not lie in the refusal of physical measures of relief or the efficacy of prayer, but in offering to people a way of life, a new Epicureanism which promises to free the soul (and body) from fear, care, and unrest; and its real lever is the optimism which discounts the worries of the daily round. It has done the profession good in awakening an interest in a too much neglected section of rational therapeutics. The tragic side of the story lies in the valuable lives sacrificed to the fanatical ignorance of so-called healers. The miracles of Christian Science are the faith cures which we all know so well. They are exclusively in the realm of functional disorders. I have not met with any case of organic disease permanently cured. I know of reputed cures of locomotor ataxia; two of these patients still take opium for the lightning pains.

4. And, lastly, there has arisen in the United States a form of faith healing known as the "Emmanuel Church movement," which originated in Boston with the Rev. Dr. Worcester, an able and distinguished clergyman of the Episcopal Church, who had had a good training in psychology under Fechner at Leipzig. Curiously the idea arose out of the success which had attended the organization among the members of his church of classes for the home treatment of tuberculosis by my friend and former pupil, Dr. J. H. Pratt. It was suggested that the Church might undertake the treatment of nervous troubles by mental and spiritual agencies. The method is as follows (I quote for brevity from Powell's *The Emmanuel Movement in a New England Town*, 1909):

> The Emmanuel movement in Boston makes use of both the social uplift and the individual direction. There is a class for the prevention of functional ailments as well as a clinic for their cure. Any Wednesday evening from October until May you will find, if you drop in at Emmanuel Church—one of the most beautiful church interiors in the land, well filled with worshippers, to the astonishment of those who think the mid-week service a spent force in organized religious life. A restful prelude on the organ allures the soul to worship. Without the aid of any choir several familiar hymns are sung by everybody who can sing and many who can not. A Bible lesson is read. The Apostles' Creed is said in unison. Requests for prayers in special cases are gathered up into one prayerful effort made without the help of any book. One Wednesday evening Dr. Worcester gives the address, another Dr. McComb, still another some expert in neurology or psychology. The theme is usually one of practical significance, like hurry, worry, fear, or grief, and the healing Christ is made real in consequence to many an unhappy heart. Though the mass effect of the service, which is always followed by a purely social hour in the adjoining parish house, is prophylactic, it is not at all uncommon for insomnia, neuralgia, and kindred ills to disappear in the self-forgetfulness of such an evening.
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> But it is in the clinic, conducted every day by one or other of the two head workers assisted by eleven helpers, that the treatment is direct and definite. Every applicant must first submit to diagnosis. If organic trouble is disclosed, he is not accepted as a patient. If the disease appears to be simply functional, the applicant is registered for treatment and passed on into the Rector's study. There he finds himself in an environment in which the very appointments of the room conduce to the disclosure of every fact, physical, mental, social, moral, spiritual, which bears in any way upon the situation. To the frankness which the family doctor's presence can evoke is added the confidence which the confessional inspires. All the conditions are for many a new patient immediately supplied which unlock the hidden wholesomeness of his inner life and lead by rapid stages to complete recovery.
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> Where more is needed than the full self-revelation—in itself curative—and the prayer and godly counsel which succeed it, the patient is next invited to be seated in a reclining chair, taught to relax all his muscles, calmed by soothing words, and in a state of physical relaxation and mental quiet the unwholesome thoughts and the untoward symptoms are dislodged from his consciousness, and in their place are sown the seeds of more health-giving thoughts and better habits. The spiritual result of such an experience outbulks all else. As week after week patients come for treatment, they frequently lose interest in the ailments which were once their torment and cease to think at all about them, physical health becomes a casual by-product of the spiritual uplift, and the sometime patient, well once more, one day goes on his way, like Jacob after Peniel singing to the world, "I have seen God face to face, and my life is preserved."
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> But the patient has his share in applying the treatment. The cure is never permanent without his complete and constant co-operation.

As the Rev. Lyman Powell says, in the excellent book from which I have taken this extract, "The only magic known in the Emmanuel movement is the magic of a mind surcharged with faith, and operative within bounds set by the scientific doctor." Here, again, the success will depend in the individual character of the man conducting the movement. The class organization, the association with church services, and the confidence inspired by the co-operation of pastor and doctor have been favouring features. Only in existence for a few years, it is impossible to say what the future has in store, but it is an honest attempt to bring back that angelical conjunction, as Cotton Mather calls it, of physic with divinity.

Briefly stated, this is the status of the faith problem in medicine to-day. Others will analyse its workings, the relation to suggestion, to the subconscious self, etc. Not a pyschologist but an ordinary clinical physician concerned in making strong the weak in mind and body, the whole subject is of intense interest to me. I feel that our attitude as a profession should not be hostile, and we must scan gently our brother man and sister woman who may be carried away in the winds of new doctrine. A group of active, earnest, capable young men are at work on the problem, which is of their generation and for them to solve. The angel of Bethesda is at the pool—it behoves us to jump in!

CONSIDERATIONS ON THE OCCULT.*

BY

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GENTLEMEN,—I am introducing to you a subject which is at present full of mystery, because the time is probably not far distant when we shall be much enlightened on the nature and application of these occult processes, and as you will possibly be in active practice during the new eventful years, I beg permission to place before you some ideas which strike me as being relevant to the subject, in the hope that your attention may be drawn to it with the view of assisting, as opportunity offers, the exploitation of phenomena the nature of which it is impossible to predicate at the present.

The Vibration Theory.

Through the vibrations of ether we become conscious of what is going on outside us, at any rate in the regions of sight and hearing, and it is to be assumed that in some way or other these vibrations of ether are transformed into a molecular conduction along the nerve paths to the central cells themselves, so that a cell which is energizing is a cell in motion in a definite way, and as long as this

* A lecture delivered at the London Polyclinic.

motion lasts so long does consciousness or activity continue. Kingdon Clifford recognized this, and he remarked that:

> The vibratory motion of solids, which is really a molecular disturbance, is absorbed by being transformed into other kinds of molecular motion, and so may finally be transmitted to the ether. (*Lectures*, i, 246.)

The importance of what Clifford wrote is manifest, for it postulates not only that external vibrations may be transmitted to the internal nervous mechanism, but that the reverse process may take place, namely, that central nervous action (for example, as in the process of active attention) may be transmitted outwards to the ether, where, of course, it ought to be capable of demonstration. If this is true it would account for telepathic influence, a possibility asserted but not yet proved. We may understand how it would be possible that internal vibration which is communicated to an external medium might, if meeting with vibrations of a similar quality, serve to reinforce the latter so as to evoke a reciprocal effect (consciousness) in the centre whence the reinforced vibrations emanated. Examine this process a little more closely. How would it occur? It would mean that in the respective spheres, say, of sight, audition, and sound (words), central impulses were communicated to the external ether, and that these must correspond with the internal process. If an image is formed on the retina it sets up certain internal processes which eventuate in what we call the perception and the consciousness of that image.

Now take the reverse process. Is it possible so to revivify (say by active attention) those internal processes that the image shall again be produced on the retina, and even further, so as to act upon external media?

There are psychologists who hint at their belief in this reverse excitation—for example, Professor Sully. If this is true of one sense, it must be true of the others, and the theory may be extended to include the whole body.

It may not be given to every one to be able to re-excite central processes so that they may flow with such intensity in the reverse direction, but there are persons of such intense concentration that they do seem capable of re-exciting dormant tracts. I knew an anatomist who said that he could so realize a dissection that when thinking of it he could actually see the parts before him as if they were really present, and it is common knowledge that painters can carry away an impression of a landscape and reproduce it in detail at their leisure, and this not merely by the *memory* that there were certain details of form and colour here and there, but by an actual revivifying of the first impression.

That the body itself irradiates into space is more than probable, though we are ignorant of all the conditions under which this occurs. Some persons of high sensibility can detect the presence of a living object in a dark room without the previous knowledge that there was any occupant, and this is intelligible when we consider that the body being a warm living thing, there must be physical emanations, alterations of air currents, and so forth. But there must be other conditions of radiation which we may conceive must exist though we cannot prove them. For instance, a well-known actor declared to me the other day that when resident in some parts of America he was in a state of electric tension, that by simply rubbing his feet on the carpet he became so charged with electricity that on raising his finger to another person there was an explosion of a small electric spark, and that he could light the gas by approaching his finger to a jet when the tap was turned on, just in the same way as happens to any one who is charged by a high-tension current of electricity. There is, probably, no such a sensitive receptor as certain developments of the human body, and when one asserts that he has feeling of a certain kind, or that he can see or hear certain things which to other less receptive organisms are not apparent, we should be able to allow that the condition is quite possible and that the recipient of the impressions is a living scientific proof of it. And yet we do hesitate to accord our belief because we ourselves may not be able to perceive what is asserted, nor are, perhaps, capable of being made to appreciate it owing to our own defective mechanisms, and so we at once not only think of deception but openly proclaim it. Why? Just because it cannot be proved and brought home to universal cognition. There are people who feel uneasy and even ill, depressed and sick, in certain atmospheric conditions when others are in no way affected—then a thunderstorm comes on, and the victims of the unseen and unsuspected influence are restored to normal equilibrium. That was a distinct vito-physical experiment demonstrated by a certain quality of organism alone. An individual in such a state that he can light the gas by just presenting his finger must be irradiating force in a way that would never have been suspected but for the coarse realization of objective experiment.

In the *personality* of some individuals the indescribable impression of latent force becomes objective; it is held probable that we are in this instance affected, not by history, tradition, or mere external peculiarity in bulk, form, or manner, so much as by an actual emanation of *force* in some shape of which our mental reception is really the exponent, the physical proof by experiment. But no such emanation has yet been proved.

Still more evident is the action of the spoken word. Here there is no doubt about the fact of vibrations communicated, and when of a certain intensity, received upon a medium, and, we must think, not only received but received by the listener in the same way as they are emitted by the speaker. If I stand at a distance—say, twenty yards—from the person whom I am addressing, the latter hears what I say if I only speak loud enough. Now, it ought to be possible to trace the progress of the vibrations through the space intervening, for, no doubt, the physical movement does exist. but so far it is not possible to show what happens. And if, as we must conceive, there are different degees of sensitiveness or receptivity in individuals, it follows that the spoken word may be of the lowest intensiveness, and therefore inaudible for some though perceptible by others. Consider wireless telegraphy. That an alteration of the air-medium between the primary apparatus and the receiving station exists there is no possible doubt, because by suitable means it is easy to interrupt—as it were to steal—the message; but there is no other evidence of this active state, though motion of some kind is constantly going on in it. The telephone is different—it is, for the time being, a part of the body, there is a visible continuity; but what we want is to ascertain the process going on in non-perceived media. As a rule, women are more sensitive to sensational impressions than men, and though I do not profess to know the conditions under which intracommunication exists in the case of the Zancigs, I can quite understand that if the positions were reversed, and if *he* were made the receiver instead of the lady, the exhibition might not be possible.

The Psycho-Physical Society is at present little more than a record of personal experiences, and because it presents nothing but assertions without physical and demonstrable proof people are inclined to scoff at its lucubrations, but in common fairness it ought to be allowed that if, during séances, or in the giving of expositions, or even in the mere narration of experiences, some condition of nervous excitement is produced (called by many people hysteria, nervousness, etc.), this very condition of excitement or tension is favourable to the reception of impressions which would be otherwise imperceptible. That charlatans exist in this special direction must be because of the want of true scientific interpretation, but that does not invalidate the probability of truth being at the bottom of it. There are charlatans in medicine and surgery, especially in the departments where our knowledge is most defective—as we know to our cost—for is not public gullibility the quantitative test of our fallibility?

To my own knowledge the following occurred:

A man went down to a river to fish and was not seen again; the river was diligently searched for many days but no trace of him was found. Then a keeper's daughter had a night vision—a dream, if you like—that she saw the body in a certain pool which she named; and there, as a fact, the body was found.

Of course, the girl knew the river, had heard of all that had been done in the way of searching, knew of the reward for the finding of the body, and doubtless had thought much upon a subject which caused intense local excitement; but may not that very excitement have rendered her susceptible to actual movements which must have occurred and which, as it were, accidentally, perhaps,

came within the sphere of her cognition? No, you will say, it was a mere coincidence, or a judgement founded on reasoning that this particular pool had, perhaps, not been searched. Well, it may be so, but on the other hand, there was no certainty that the man was in the river at all. During his act of going to the pool and of falling in there must have been a great disturbance of medial agencies which only awaited the necessary receptor for their recognition.

A man with good eyesight might have seen the occurrence a quarter of a mile off; a hawk with better eyesight might have seen it at twice or three times the distance. Why may not this girl have been sensitive to medial vibrations which could only affect a receptive agency of a definite reciprocity?

Until we can explain and show the fact of intermaterial communication there must, of course, be ridicule of those suppositions, and that person remains in possession of the field of human intelligence who loudly proclaims as his creed, "I believe just what I can see, hear, feel, or smell, and nothing more."

When I say to another person, "You will sleep to-morrow at 10 a.m." I arouse his expectant attention; I arouse a process which goes on in certain cells; I arouse a process akin to my own, which, through intensification, becomes in my subject a dominant and reinforced idea, to the exclusion of others. When I say to a person, "You cannot get off that chair," and when the person finds that he cannot, what has happened? I arouse in him a definite idea, and the vibrations are in harmony with mine, the new idea is reinforced and becomes dominant, and therefore imperative; for, surely, to have the idea that I *cannot* get off a chair means the actual inhibition of the idea that I *can* do it, and so there is nothing to set in action the muscles necessary for getting up.

In the same way the command to go to sleep involves the arousing of a dominant idea, the muscular expression of which is the closing of the eyes, the adoption of a reclining attitude, and the assumption of the prodromata of sleep.

It is common knowledge that the strenuous tension of the idea is so essentially the antecedent of muscular action that it is often impossible to control the latter in the presence of the former, hence the term "ideo-motor action," and generally we may sum up the action of the person who is obedient to suggestion or to hypnotism in the words "ideo-motor"; but this form of action is of the *impulsive* kind, of what Wundt calls simple voluntary action, and the chief constituent of it is Feeling—we all know that the more emotional a person is the more impulsive, the more liable to suggestion he is. The art of the suggestor, or of the hynoptist, is the creation of a state of mono ideism, of reduction to a condition in which the balance of motives is upset and where there can be no choice, and this is done by the influence of personality, by authoritative or persuasive tone of voice, by the means of artificial aids, such as electricity, crystal-gazing, etc, which tend to concentrate the attention upon what is being said, to arouse an idea of the same tone as the suggestor's, reinforced in harmony with it. External voluntary action cannot exist without an internal process, though the converse does not hold. The suggestor knows that the assumption of an external position may, however, lead to the internal idea of which it is the expression, and he almost invariably (anyhow at first), imposes certain muscular adjustments, knowing that his best way to influence and set up definite internal conditions is by what has been termed the muscular element of thought. Can internal voluntary action be registered by any means—that is, Can thought be made manifest, apart from some muscular demonstration?

Here lies the great secret. If it can, then telepathy is possible. Can the mere *internal* willing something cause the thing willed to come to pass? You will probably say, "No; because if it could there would be an end of individualism and of secrecy. If by merely willing I can compel another to disgorge the contents of his internal nervous action, there is an end of speculation, of deceit, of bargaining—any person's mind would be open to the caprice of another, and the word 'privacy' would cease to have an intelligible meaning!"

It is true that we can sometimes tell what is going on in another person's mind, but only when he gives the clue by involuntary muscular action, as by a cry or a start, or by an involuntary blushing or pallor—only by some medium of external communication of this sort.

A strong internal concentration is a personal proprium, a self-determinant, only capable of influencing others by example or the spoken word. At times so strong as to assert itself, it displays what is going on by an involuntary exclamation or movement, but, if combined with this internal thinking, there is sufficient inhibition, then no one can divine what is going on. Those who profess to be thought-readers are really persons of quick perception trained by experience, who are thereby able to notice minute physical changes in expression, colouring, or action, and to draw conclusions which are not manifest to others less gifted or accomplished in the art of interpretation.

Look away from man for a moment.

Is there going on outside us a world of *Force* which requires for its display the human mechanism? If there is *Force* existing under these conditions, does it ever show itself in apparently purposeless actions? For example, How is it that there have to be stimulations of the human mechanism in a way which is palpable before we agree to notice brain or nerve action? A person may be sitting quietly, when all at once he says or does something unexpected by himself or others. He may even say, "I wonder what made me say—or do—that. It seemed suddenly to occur to me, for I was not thinking of it at the time." Such instances must be viewed with great suspicion, for as a rule it is possible to trace antecedents to both internal and external action—as a rule, I say; but if our first premiss is true—namely, that there may be external Forces at work which are able to affect the human mechanism—it is surely not possible to deny that the individual may have been moved to speak in a way unknown to himself by some influence of which he was the appropriate medium. There must be—there are—paths of subconsciousness leading to the connexion between ideas which it is difficult, perhaps not possible, to trace, owing to their rapidity or to their low intensity. For instance, two men may be faced with the same mathematical problem; the one without any hesitation gives the correct answer (which is indeed a judgement process differing in quantity from the first proposition, and only possible in its solution by a continuous chain, however rapidly the links may be traced over), whilst the other arrives at the same conclusion by a slow process the steps of which he is painfully conscious of; but if asked to state how he arrived so rapidly at his judgement the born mathematician will say that he cannot tell you—the result seemed to come at once without any consciousness of intervening processes, though, of course, these must have occurred, but they were too rapid and feeble to rise into a perception of them.

It is, then, hypothecating the predicate to assume that there is no connexion between ideas because we are not able to trace it at all times. Many will recall occasions when, though not at first able to trace the steps by which the connexion between ideas occurred, they were yet able by diligent attention to so *intensify* the intervening steps that they finally rose into consciousness and clearly demonstrated that the association between ideas was actually a determined one.

To prove that the perception of sensation demands a definite intensity and time in the receptor, it is only necessary to mention that it is possible to read so quickly that only a blurred consciousness follows of what has been read—there was no time for the too rapid outer impressions to rise to a full consciousness of their meaning.

Remember that our present question is that of the possibility of external Force influencing the human organism. Can these abstract "mental atmospheres" affect the nervous system so that an insanity, or a group of symptoms, may be set up without a morbid internal physical alteration? Can we suppose that sudden and temporary frenzies may be produced in this way, just as if, considering the human mechanism by itself, there was a wild and tumultuous agitation or sweeping over of the instrument in such a way as to cause a discord or incoherence? Such a condition would be a true functional insanity, and would account for those cases in which, though mixed up with incoherence and even delirious and strange actions, there is yet evidence of intelligence and

perfect sanity in the conduction of the ordinary affairs of life, and after death there are no more traces of disease than may be found in any one whose mental action has been considered normal.

If the body and brain are just merely instruments for the working of this Force, then our actions denote that some changes are going on in the nature of this Force for which there is in us no responsibility. We are just puppets, as it were, the keyboard of an electric installation. And, if so, man is just a necessary complement of this Force, nothing more, and the object of his creation was merely that of a Force terminal, an Æolian harp which discloses the motion of winds which we cannot see. If the existence of the Force we are discussing is a chimera, a fantastical creation, what are we to say to the writings of the Prophets in the Old Testament? They wrote things which they did not understand and had no knowledge of at the bidding of a Voice, and some of these forebodings actually came to pass. Was this just a coincidence? How could they write what seems to us wonderful, not having before any experiences which could make possible the things about which they were writing? We must either disbelieve the Old Testament or confess to the existence of a Force which we do not understand, and have not, up to the present, been able to demonstrate.

But we recognize that a man may be so placed that his bodily conditions set up manifestations of mind, so that a reverse process is set up, and Force is, in its turn, compelled; for example, a man is placed in uncomfortable, or even dangerous, conditions: he sets to work to extricate himself by the exercise of an *internal* mental process and by external organs, and this has just the same effect as a guiding external process. There is no efficacy in Prayer unless we believe that an external Force can be brought to bear on our internal mechanism. Whatever is the virtue of the agencies at work outside us the key that unlocks their manifestation in ourselves is Sensation—no Sensation, no mind—not no nervous action, but no mind—perhaps we may say that sensation is the earliest form of mind, and who shall say how impalpable may be the causes of Sensation, or what is their true nature?

Take the instance of the oak-eggar moth, whose power of attraction has been brought to my notice by Dr. Ernest Carter. If the female insect is put in a box covered by gauze the male insects are attracted from an enormous distance. This is probably due to a very refined sensory power, but no one knows for certain that it is so, and even if it is the instance just shows how potent are the agencies going on around us of which we know nothing.

What is body without mind? What is mind without body? The former can illustrate some forms of organic life, but that is all; the latter may exist, in some form or other, but we cannot prove it, and this proof is just what we are most anxious to obtain. We want to know the nature of the *Force* which when interpreted through the human mechanism means mind. That there is some such energy we must believe, because we witness results which can only be conceived as occurring from the action of an external agent. The people who deny this external agency say: "Prove it to us; describe its nature and reactions, and we will believe it. We are quite satisfied with things as they are, and we do not require an external force to explain them." The others say: "Such and such mental manifestations have occurred, and can only be accounted for by external Force which has been made manifest in persons of particular composition and susceptibility; there is no trickery about it, and you cannot prove any deceit." And so, apparently, the matter rests.

It is Life which links up mind and body, but Life is not mind; there is plenty of Life without mind, but there is no mind, as we know it, without Life. Are Life and Spirit the same thing? A living body is evidently a combination of body and something else. What is that "else"? A dead body cannot be revived by mere mechanical agency. A living body has *selective* powers; it incorporates this and it rejects that; and this selective power is its Life. When the selective powers cease the organ is dead. Nutrition, or selective power, is Life, but it is not of necessity Mind. In sleep there is selective power; the nutrition of the nervous system goes on; but that is not Mind, because manifestations of Mind are absent unless when shown by the accidental occurrence of dreams. So that Life is not Mind, for will, attention, feeling, and every other mental function may be in abeyance, but there is still Life in the parts.

Why is it necessary to think that there is such a thing as external or spiritual mind? Why will it not do to confine our speculation to the *live body?* It is clear that there is something besides the body; there is the *live* body, and we have shown that Mind and Life are not the same thing. There is a certain school of thinkers who do so confine themselves; for them the living body is enough. They argue that it does contain in itself all the elements for voluntary action, ideation, etc., without the necessity of invoking any other agent. It is sufficient for them that the body is alive, and they are not concerned with what it is that makes it alive. Given this, they profess to be able to explain the action of the processes by the essential constitution of the body itself. The people who hold these views are competent investigators, who have persuaded themselves that they are sufficiently satisfied with things as they are. I do not know that they are opposed to the possibility of such a state as hypnosis, nor to the agency of such a thing as Suggestion, because it is to every one patent that hypnosis and Suggestion are everyday facts, but they explain them in their own way—by the terms of the organization itself—and they deny that it is necessary to call in any Force or Power of which we know nothing. It may be permitted to ask, however, if they really are satisfied, or whether it is not that they take things as they are and assume that the mechanism is perfect and self-sufficient? Their explanation of Hypnotism is that the condition depends upon the acquiescence of the living body itself, that it is not due to any force or special essence in the hypnotizer, but that it is purely a subjective state—is, in fact, an auto-process; and, as to Suggestion, they aver that it is merely the acceptance of an idea which is made strong or reinforced by repetition, and which thus becomes a belief, and therefore sets up an action of the kind desired by the suggestor. And who shall gainsay them? If it ever comes to be proved by physical methods that influence can irradiate from one body to another, that there are conditions of matter which can affect some organisms and not others, then, no doubt, they will give their assent to the demonstration; but, as things are, they refuse their belief to the statements of clairvoyants and telepathists, because only certain results are *affirmed*, and neither agent nor process can be analysed nor made patent.

Whilst this is the condition of some psychologists, there are yet many others who are not satisfied with regarding the body as self-contained. It does not content them to assert that there is no guiding power to our actions and thoughts as they are willed; it does not satisfy them to reject the affirmations of others because they do not come within their own category and cannot as yet be explained; they quote their *feeling* that there is yet something behind these occult manifestations, and they point to the truth that many things which at one time were not believed, but were said, indeed, to be impossible, have become now accepted commonplaces.

There is really no reason for thinking that we have such a thing as an "activity process." Why can we not be satisfied with a Life or a Force which, when attached to an organism, sets up certain processes? For, after all, there is such a thing as Life, and it is superior to mind and body, making them but its complements. Life can surely go on without mind and body, but the latter are useless without the former. At any rate, there is something which, when joined to the body, means mind and actions, and which, when abstracted, means death or cessation of function. Whether this something is Life, or whether the term "Life" must be kept for the Force—the something, as shown by its union with an organic body—is perhaps a question. It cannot make stone into bread; it cannot, having once left an organism, re-enter it, revivify it, as it was before. It must have been with it from the first. It is a thing by itself, and we know nothing of its nature when separated from the body. It is not electricity, nor magnetism; these are but manifestations of it in other ways. It requires a definite kind and state of material for its association; it cannot work through injured material, because we see that under certain conditions of injury or disease it forsakes its complement and the material degenerates into lower forms of matter, upon which this "Life" has no influence. Whatever its nature, it must be differently modified according to the nature of

the medium; and as no two bodies are the same, it follows that their living manifestations must be different, though the more closely two bodies approach one another in composition the more similar must they be in vital manifestations; hence we may conceive the possibility of what have been called "affinities"—conditions in which two persons seem to be in some sort of relationship which is inappreciable by others. Physical alterations, such as food, education, etc., set up alterations in tissue, and therefore vital Force is constantly having changing material to work upon, which will cause manifestations which we can neither expect nor explain, baulking anticipations of uniformity of action and giving occasion for surprise at what happens.

Vitalized material must have radiating external influence, and moving Life (a body in action) will possibly have influence on a similarly attuned moving Life. How we are to show this is the question. Falling in love, apart from the more sexual question, is a subject worthy of more scientific treatment than is generally accorded to it. That people of the most apparently diverse personal attributes and social positions should be so attracted to one another as to fly in the face of family prejudices, and that they can give no reason for the attraction save the feeling that it exists, is beyond explanation. It is possible that the attraction which sometimes is found—and which is looked upon generally with reproach by society—between persons of the same sex, is founded on deeper structural affinity than we are willing to recognize. The *Schwärmerei* of the Germans, the "Urnings" of this country, refer to conditions which most people are unable to understand, but apparently they are conditions well recognized by many who act upon the compelling force of their attaction. It seems as if something in the one person met with its complement or reinforcement in the other (vaguely described as "animal magnetism"). Such persons are thought to be abnormal, or even degenerate, and yet they may be people of great intellectual power; but society, not understanding, refuses to condone such alliances. Perhaps from our standpoint we may take a more reasonable view of these eccentricities, and be content to allow a possible cause for what we cannot explain, though we refuse to consider as a depravity. All this points to the conclusion that there is something in us, and of us, and round about us, of which we know nothing.

Hypnotism need, then, not mean any peculiar power in the hypnotizer; it is a subjective state brought on by reduction to a state of mono-ideism through the insistence by an outsider that such and such a condition will occur; this idea continually reinforced becomes a positive compelling idea, and as such must act in its own way, and will set up its own associations. Any one, then, can hypnotize; it requires no special auto-force beyond a certain amount of definite assertion and a little art; the real agent is the hypnotized himself, and if he resolves not to submit to the ideas suggested to him, there is no reason why he should be hypnotized at all, unless, indeed, certain physical processes have been used to bring on *fatigue*, in which case he may lose his power of inhibition, and thus drop into the train of thought proposed to him. Suggestion is very much the same thing. There is no mystery about it. It is the setting up or prompting an idea which by constant reinforcement is turned into a dominant one leading to action in its own direction. It is just a matter of education, and can be undertaken by any one, but more successfully, of course, by those who are said to be authorities on the subject, and to whom people turn with a mental state already predisposed in favour of the suggestor.

The case of telepathy is different. No one is competent to assert that it exists; no one can deny the possibility of it; we are in the hands of the physicists; we have arrived at the conclusion that manifestations of mind do not depend upon the body alone; the material through which these manifestations occur is there, but without that something which we have called Life it cannot be envisaged. We must suppose that when the living body dies there must be an upset in this external Life or Force, just as there is when one is born, so that there must be constant change going on in this Force, which when in union with the body means the *living* body, and calls forth its manifestations, of which Mind is only one. When Life leaves a body we must suppose that it may have been modified by its connexion with that body; we can scarcely conceive that it is altogether unaffected, but rather that it has a definite form still capable of affecting an organism of a receptive or complementary character. Take for a moment those cases where persons allege that an image of a friend or relative has appeared to them at the moment (as afterwards ascertained) of his death. It might be seriously argued that the Force or Life which at the moment of rupture left the body was so modified that for a time, at any rate, it was able to so act on another similarly tuned bodily organism as to re-excite correlated parts in it. Of course, most of the so-called ghosts or apparitions are subjective intensities projected externally in people who are placed in circumstances prepared for the realization of what has been discussed and is expected. If a person of strong power of attention goes to see the Hampton Court ghost appear at a certain given time and garbed in a certain manner he will probably see it. That is a case of subjective ideal projection, but such a case is very different from the one described in my book, *Ex-cathedrâ Essays* (p. 137), where all knowledge of what had previously happened was *ex post facto*. It may be quite correctly urged that this is a theory made up to explain occurrences, and that if it were true we should have more frequent demonstrations of its action—for example, it might be expected that at the time of the death of a murdered person there might be the presentment of it to some other living friend, but I have never heard of this, nor can I explain why it should not happen, if the other instances cited are true.

There can be no scientific hypothesis in favour of fortune-tellers or seers into the future, or in the host of crystal-gazers who profess to foretell what is going to happen. All these are but people who form more or less shrewd judgements from what they have heard or have noticed, and who combine it with strongly asserted guess-work. Such prophecies are essentially of the nature of suggestion, and their object is to arouse a strong subjectivity, which may by chance eventuate in action of the desired kind.

In the year 1904 I wrote in the same strain as I am now doing. Since that time I cannot find out that our knowledge has been materially increased. The cry is still the same: "Show us proofs of an activity-process; prove to us the nature of the Force which, acting through organic material, makes it a living thing." True we have acquired knowledge of radio-activity, and we have had theories of a coloured bodily aura, but we want to have it *shown* whether the living body irradiates in any way. When the Force which we call the Life ceases to act on the body, is it in any way altered so that it can still, to some degree, affect other living matter? Can living matter affect other living matter at a distance by means of a change in the medium between the two, apart from the agency of known conductors? Surely it can—it must. A magnet lies quietly on the table, but we know that there is a modified medium within a certain distance, because we find that within the limits of its agency a piece of metal flies to it. But, beyond the fact that the metal flies to it, we should not know that there was any existing alteration of the space between them. We want more knowledge of the invisible and the intangible before we can refuse to believe the truth of what we often see or hear, but which is called deception. Meantime, we wait in the hope and in the belief that some of the nature of the multitudinous processes which are going on outside our ken are yet within the field of demonstration to such powers as we have or shall attain to.

What a field for speculation it is to consider the number of forces which are going on outside us of which we have no knowledge, though some of them must affect us in different ways, and may be at the root of our obscure feelings, ideas, and actions. Meanwhile, we go on patiently toiling—not forgetting, however, that there probably are processes going on which we may never be able to demonstrate; they are in no relationship with us, and pass us by without notice; being of a different order, we are as nothing to them, and they are nothing to us.

It is quite right to form hypotheses on these subjects; indeed, the whole chapter of J. S. Mill on "Hypotheses" should be studied, for nearly everything which is now theory was once hypothesis. There is no reason for assuming that the true explanation must be one which with only our present experience we *could* imagine. Among the natural agents with which we are acquainted

the vibrations of an elastic fluid may be the only one whose laws bear a close resemblance to those of light; but we cannot tell that there does not exist an unknown cause other than an elastic ether diffused through space, yet producing effects identical in some respects with those which would result from the undulations of such an ether.

And so we go on from hypothesis to theory, from theory to an actual knowledge of the facts and their causes —some day.

ABSTRACT OF A LECTURE ON PSYCHO-PNEUMATOLOGY;

OR, THE INTERACTIONS OF MIND, BODY, AND SOUL.

DELIVERED AS AN INTRODUCTION TO THE SUMMER COURSE OF LECTURES,

BY JAMES RORIE, M.D.,

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IN a review of "Philosophy by Experience (Pragmatism)," by H. Heath Baden, in a recent issue of *Nature*, the following occurs: "The only future that is possible is an immortality of function. An organism is nothing but a centre or focus through which the world energy operates. When the organism is lost in what we call death, the function may well enough go on in terms of more subtle forms of energetic activity. Perhaps if a criticism may be ventured, modern 'Psychology-without-a-Soul' has become *too much* afraid of being metaphysical—a function must be a function of something. If there is an act there must be an Actor, who is in a way greater and more real than the Act. A Soul entity, then, is justified. It is as reasonable to posit it as to posit a surviving function." Sir Francis Galton, in a letter to the *Times* of May 31st, writes: "The march of science is fast obliterating the distinction between the material and the non-material, for it is now generally agreed that matter is a microcosm of innumerable and it may be immaterial motes, and that the apparent vacancy of space is a plenum of ether that vibrates throughout like a solid."

Statements such as these (and many others might be quoted) show that the reaction, which was bound sooner or later to come about, against the materialistic monism introduced by Carl Vogt half a century ago, has now fairly set in, and that while physiological and experimental psychology have led to no small advances in neurology, they have done very little towards increasing our knowledge of pure psychology or the real nature of mental activity. They only make it clear that, if we are to arrive at a correct analysis of man's mental constitution, the spiritual element cannot be set aside and disregarded.

As this subject is now attracting considerable attention, the following (which is practically the terminal portion of my introductory lecture on mental diseases, recently delivered in Dundee University College) may interest some readers.

At the present time there are no questions of greater importance or more pressing for solution than those connected with the nature of the physical and cerebro-neural changes underlying the mental state, as revealed in consciousness. The most recent discoveries made in the general and microscopic anatomy of the brain, and the views now entertained as to the nature and physiological importance of the neuron and nerve cell, or "psychical organic unit"; the important functions discharged by the neuroglia, formerly looked upon merely as a connective tissue, but now found to be an antitoxic protective agent against brain-blood poisoning, and also regulating the chemical process of nerve tissue metabolism, all show an immense advance in neurology. A great change has also taken place in our ideas in regard to mental activity, in so far that what formerly was treated of as mental philosophy is now studied as physiological psychology, and many phenomena regarded formerly as purely mental are now, under the title of "psycho-physics," subjected to rigid experimental investigation in laboratories specially fitted for the purpose. Again, instead of viewing the mind as operating through certain faculties peculiar to it and apart from the body, psychologists now begin at the other end, working gradually up from the stimuli or physical forces operating on the nerve end organs, specially provided for the conversion of these—such as the vibrations of the atmosphere in the case of hearing, and those of the ether in regard to vision—into the nerve current; a vito-neural energy, and its transmission as such to the cerebral nerve cells. The difficulties experienced in further tracing the transformation of nerve energy into purely psychic or mind force—that is, how mind acts on matter and how matter acts on mind—still remain, however, as great a puzzle as before to all investigators. The opinions of various eminent authorities show a pretty general agreement in the view, as expressed by Goodsir, "that it would be unphilosophical, and could not be admitted by the physicist even as a hypothesis, that a psychical power and a physical force can act and react on one another, and that the future elucidation of the problem would probably depend on the cautious philosophical investigation of their mutual influences." The weak point in this view is in assuming that a physical force does act on a psychic energy, and vice versa. Recent discoveries in physical science rather indicate that through the influence of the nerve end organs the atmospheric and ethereal vibrations—purely physical energies—are transformed into a vital nerve force with totally different properties, although itself as yet of unknown nature, and that it would not be assuming too much to imagine that through an analogous process in the cells of the cerebral cortex the nerve current passes into the condition of psychic energy.

But here again another difficulty presents itself, for although the above might go far to explain the phenomena of the primary activities of such intellectual processes as sensation, perception, association of ideas, etc., it would not explain those of consciousness, freewill, and memory, to say nothing of conscience, morality, and religiosity. For the manifestation and recognition of these a higher form of energy seems imperative; it is just here that the materialistic monism which was introduced into this country by Carl Vogt and other German writers fifty years ago, and has during these years exercised so great a control over modern psychology, breaks down. The failure there can be little doubt is due to the refusal on the part of most modern psychologists to accept any evidence except that demonstrable to the senses; they thus exclude such testimony as that of personal witnesses and under this head there must be included revealed truth. This is all the more remarkable, as such evidence was, not so very long ago, readily received by many eminent men. Michael Faraday, who spent his lifetime in the forefront of experimental research, declared in a lecture on education, delivered in the Royal Institution, London, that, "High as man is placed above the creatures around him, there is a higher and more exalted position within his view; and the ways are infinite in which he occupies his thoughts about the fears or expectations of a future life. I believe the truth of that future cannot be brought to his knowledge by any exertion of his mental powers, however exalted they may be; that it is made known to him by other teaching than his own, and is received through simple belief of the testimony given."

But the clearest exponent of this view of man's organization was the late John Goodsir, Professor of Anatomy in the University of Edinburgh. Goodsir was not only a naturalist, physiologist and anatomist of European reputation, but also a philosophical psychologist of the first rank. He taught, that "Man in his constitution consists of three elements—a corporeal, a psychical, and a spiritual"; and these he treated as of the Sarx, Psyche, and Pneuma; that it was in the last of these, and not in his corporeal element, that his personality resided, and in the possession of which he differed so greatly from all lower animals that he ought not to be classified with them. Although Goodsir never directly said so in his lectures, there is little doubt that in this division he was influenced by the revealed declaration that man in his creation had superadded to his animal organism "the breath of life," or, as some translate it, "the breath of lives" (attributes of the Divine Three), and so became a living soul. He accordingly held that, "while there can be no question as to the existence in the animal of a principle allied to our own human consciousness, every unbiassed observer who has studied the actions of the various forms of animals from the protozoon upwards must feel impressed

by the manifestations presented of an ascending series of forms of consciousness—a series co ordinate with the series of structural forms in which their presence is manifested, and that these manifestations are three fundamental conditions or states of consciousness: (1) As manifested in sensation and perception; (2) as manifested in the appetites, emotions, passions, social impulses, and special habits; and (3) as it manifests itself in the determining power or will"; but he adds: "An animal has *no will* in the proper sense of the term. In like manner it cannot be conceived to possess a choice between right and wrong, action or inaction." And, in regard to man, he states: "Provided, like the animal, with instinctive, corporeal and cosmical conditions of life and welfare, he has superadded to his animal constitution a conscious principle possessed of entirely different faculties and endowments. In the possession of this higher principle, man is elevated above his own corporeal and instinctive individuality. He may control his animal instincts, and use his body as a thoroughly adapted instrument. In the possession of this higher conscious principle, a human being is not merely an individual—as an animal can only be considered—he possesses also a personality—he is a person who is called upon to employ not only his body and animal principle, but also his higher and self-conscious principle, conjointly under the guidance of the latter, to those great and extensive purposes for which he was created."

Again: "The will in man also is, in consequence of his self-conscious faculty, a will properly so-called, for it is, or ought to be, determined or regulated by those higher or Divine principles of thought and belief of which he is conscious."

And he adds: "At this point we reach the solution of the question as to the essence of humanity. With an animal body and instincts, man possesses also a consciousness involving Divine truth in its regulative principles. But along with this highly endowed consciousness, the human being has been left free to act, either according to the impulses of his animal, or of his higher principle. The actual history of humanity, of its errors, its sufferings, and its progress, is the record of the struggle between man's animal and Divine principle, and of the means vouchsafed by his Creator for his relief."

And he further states that "the Psyche in man must be assumed as the instinctive element of his threefold constitution. Upon its deputed efficacy depends that determinate and co-ordinate action of all those physico-chemical forces which are collectively engaged in the development of his body from the ovum and in his lifelong structural modifications and physiological actions; and in which in man also are based all those instincts, emotions, appetites, and passions which, stronger, keener, and more numerous than in the animal, were conferred on man for his higher purpose and greater enjoyment so long as subject to his higher principle. It is distinguishable from the spiritual principle in man, by the immutability of its powers and attributes and strict co-ordination of these to its proper sphere for each species of organism. On the other hand, the Pneuma or spiritual element in man, also immaterial in its nature, because only recognizable by its manifestation through consciousness, although in its endowments strictly co-ordinate with the purpose of man on earth, and with his future eternal destination, is nevertheless subject to his will."

I have given Goodsir's views pretty fully, from the conviction that they have been too much overlooked, and the feeling that ere long they will yet receive the attention they deserve. Indeed, the most recent writings show that the scientific views of many illustrious men are already tending in this direction. Thus Sir Oliver Lodge, Principal of the University of Birmingham, and one of the most eminent physicists of our day, in one of his latest works, *The Ether of Space*, after referring to the most advanced views at present entertained in regard to the constitution of matter and the relations of ether to electrical and other energies, says: "The ether has not yet been brought under the domain of simple mechanics—it has not yet been reduced to motion and force . . . conceivably it may remain apart, and our first additional category wherewith the foundations of physics must some day be enlarged may turn out to be an ethereal one . . . and when the present century or the century after lets us deeper into their secrets, and into the secrets of some other phenomena now in course of being rationally investigated, I feel as if it would be no merely material prospect that will be opened on our view, but some glimpse into a region of the universe which science has never entered yet, but which has been sought from far, and perhaps blindly apprehended, by painter and poet, by philosopher and saint." And as indicating that it may yet be possible to trace a direct relationship between physical, psychical, and spiritual energies he says: "The universe we are living in is an extraordinary one; and our investigation of it has only just begun. We know that matter has a psychical significance, since it can constitute brain, which links together the physical and the psychical worlds. If any one thinks the ether with all its massiveness and energy has probably no psychical significance, I find myself unable to agree with him."

And the author of *The Unseen World* goes even a stage further when he affirms that, "We are led to believe there exists now an invisible order of things, intimately connected with the present, and capable of acting energetically upon it; for, in truth, the energy of the present system is to be looked upon as originally derived from the invisible universe. Now, is it not natural to imagine that a universe of this nature, which we have reason to think exists and is connected by bonds of energy with the visible universe, is also capable of receiving energy from it? Whether is it more likely that by far the larger portion of the high class energy of the present universe is travelling outward into space with an immense velocity, or that it is gradually transferred into an invisible order of things? May we not regard ether or the medium as not merely a bridge between one portion of the universe and another, but also as a bridge between one order of things and another, forming, as it were, a species of cement in virtue of which the various orders of the universe are welded together and made into one? In fine, what we call ether may be not a mere medium *plus* the invisible order of things, so that when the motions of the visible universe are transferred into ether, part of them are conveyed as by a bridge into the invisible universe and are made use of or stored up. Nay, is it even necessary to retain the conception of a bridge? May we not at once say that when energy is carried from matter into ether it is carried from the visible into the invisible, and that when it is carried from ether to matter it is carried from the invisible into the visible?"

Be that, however, as it may, we have seen how admirably Goodsir's views in regard to man's physical, mental, and spiritual constitution adapt themselves to the most advanced scientific ideas, and of even higher and more incomprehensible problems such as those of life, death, and the hereafter, when the individual having fulfilled his purpose on this earth, the time has arrived when the psyche and pneuma have to be withdrawn from their mere material companion, and when the last in consequence, coming under the dissociative laws of physico-chemical action alone, returns to the purely inorganic elements of which it has been composed, while the two first still united and now the repository and register of all the "deeds done in the body," continue to pursue their eternal and predestined course.

At the annual conference on June 15th, in Leeds, of the Charity Organization Society, Dr. F. E. Fremantle, Medical Officer for Hertfordshire, urged that the treatment of school children found defective on medical inspection was a separate problem, and expressed the hope that the Government would appoint a departmental committee to put together the facts presented in the Poor Law Commission's report and in the local reports on school health and public health. He contended that it was necessary to establish a State medical service, to employ nurses to instruct and encourage parents, and to bring about the co-operation of all voluntary institutions. Dr. C. S. Loch, secretary of the society, spoke in favour of a single agency for all public relief. In the evening Sir Nathan Bonnington, Vice-Chancellor of the University of Leeds, presided at a meeting to which Mr. F. H. Bentham, a member of the Poor Law Commission, delivered an address on the constructive policy of the Majority Report.

ON PALAEOGENETIC FACE-PATTERN IN ACROTERIC PIEBALDS.

BY

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Broad forehead, streak on face of horse prolonged upon the upper lip and showing also on lower lip. White stockings occurred on all four feet, very long on the hind feet, and very abruptly margined. The horse was not otherwise piebald. Both in Buffon's portraits and those of Neisser the lower lip was implicated as well as the forehead

THE most casual observer in London streets must have noticed that many horses have stars, or streaks of white, on their faces. It may, however, evoke a smile of amused incredulity if it is asserted that these markings sometimes have their representatives on the human face.

In the first place let me point out that these patches may differ much in size and contour, and although usually in the middle line, and bilaterally symmetrical, they are sometimes one-sided and conspicuously unsymmetrical. They sometimes run the whole length of the face, from the vertex to the lips, and may affect even the lower lip, whilst on the upper forehead they may have side-wings and become dagger-shaped. With them comes the very curious and important observation that the animals which show them almost always have the lower parts of their extremities, one or several, white to a greater or less extent, and that the extent to which they are white is in direct ratio with the size of the patches on the face. "White stockings" is the colloquial expression in use respecting the feet, and the association of the two is recognized in the farmer's charge to his son when going to the fair:

> Four white stockings and a white nose,
> I pray thee, my son, buy none of those.*

When the forehead marks are large they are called "blazes" or "flares." I do not believe that they imply any real discredit to the horse which shows them, but they have their meaning. For the present all detail must be avoided, and I must invite my readers to observe for themselves in any town-street, or, to greater advantage and more at leisure, at any railway station. It is to be noticed *in limine* that although we speak of them as "*white* markings," they are not invariably white, but that when in other tints they are, as will be easily understood, less conspicuous. This circumstance it is which to some small extent explains their being less easily observed in the human subject. Although I have preferred to give the horse as my example, these face-markings are common to many of the larger quadrupeds, and may be easily studied in many dogs.

Illustrating the common association of a white star on forehead of horse with white feet on three legs. Note that the "stockings" are small and the foot that has none is the right forefoot (according to rule).

The items of evidence which bear upon the occurrence of "blazes" and "white stockings" in the human subject are but very scanty, but they are very instructive. The first which I adduce is from a drawing taken by an English surgeon in the West Indies of a piebald girl. The ship in which it was being carried to England, having been taken by a French privateer, the sketch fell into the hands of Buffon, and was by him published. It must be remembered that this was long before the days of photography, and that no details of the case were recorded.

A piebald goat showing a broad white band on the face in association with white legs and black stockings. To be compared with Buffon's portrait of piebald child with star on forehead and black gloves and stockings. (Copied by permission.)

We must notice that the "blaze" on the child's forehead is dagger-shaped and has an island near its centre, that it does not involve the nose, but recurs on the lower lip and chin. As regards its body, the child is (as is usual in piebalds) patched with rudely bilateral symmetry, and, what is more important, that its four extremities, manus and pes, all carry stockings or gloves, which, however, are not white, but black. It is the pattern, and not the colour, which is noteworthy.

The observations respecting this portrait might be passed aside as exceptional, or vulgarly claimed as a "freak," were they not most remarkably substantiated and illustrated by the next group which I produce. The portraits of three negresses, which are here seen, are executed from a photograph given me ten years ago by Professor Neisser of Breslau. I have his permission to publish them, but neither he nor I have been able to obtain any particulars, or to say whether they have ever been published before. It is very probable that they have; and if so, I should be very much obliged to any one who can give me the reference to place of their publication or any facts respecting them.

The girls were sisters and presumably of different ages. It will be seen that all have the forehead "blaze" and the patch on the chin, but with certain minor differences which are important as demonstrating that

* The term "acroteric" is used to denote association with the extreme periphery, that is, *with the outermost points*. The tip of the tail, the ends of the four limbs and of the nose and the external ears, are all acroteric. The term may be extended to include adjacent regions, as, for example, the forehead and whole of face.

the pattern may vary in detail whilst remaining essentially the same. The upper part of the dagger has no doubt been distorted by the manner in which the white hair has been arranged. The fact that a piebald condition occurred on the upper extremities is made evident in the central figure, and in all of them it is shown that the manus remained wholly black or almost so, as in the Buffon's case. We may safely suppose that all three were in essentials alike. The occurrence of such similar phenomena in three sisters, and, still further, their parallelism with what is seen in the Buffon portrait, are, I must insist, sufficient to prove that we must refer them to the action of law and not to mere chance coincidence; and the same statement applies, I think, to the comparison which I have suggested with the forehead and foot pattern as they are observed in the horse. It is surely needless to protect myself from the absurd inference that I suggest any direct transmission by inheritance between horse and man. All that I imply is that horse and man alike inherit an integumental organization which under the laws of palaeogenesis may evolve, even in very remotely related animals, similar results.

Face-pattern on a negress with acroteric distribution of colour in a piebald skin. (From Buffon.)

It is obviously much to be regretted that no family history of the patients is obtainable (at any rate for the present). We do not know for certain, either in Buffon's portrait or in those of Neisser, that the girls were mulattos. It may be plausibly suggested that they were; but I may remind those who are inclined to attach much importance to this supposition that mulattos are very common, whilst the conditions here shown are extreme rarities, and that the mixture of races has never been observed to bring out patterns of this kind. My own belief is that what we here observe are the result of palaeogenetic inheritance, and that we ought not to attach much importance to the fact that the subjects in this instance are all of negro race. Mr. Bishop Harman has, indeed, already given us (in the *Transactions of the Ophthalmological Society* a most instructive narrative (with a portrait), in which in several generations forehead-patterns occurred in subjects of English parentage. I possess in the Polyclinic Museum and in my notebooks sundry other illustrations of coloured face-patterns, but prefer for the present to allow these cases to stand by themselves.

Face-pattern in three negresses (sisters) with acroteric distribution of colour, probably on a piebald skin. (With permission, from a photograph given by Professor Neisser.)

My observations of the face and foot markings of horses have extended over many years, and I am in a position to make certain statements respecting them with tolerable confidence. There are exceptions to all rules, but, allowing for these, I am sure that generally, as I have already stated, the upward extension of the patches on the legs will be in ratio with the size of the star or blaze on the forehead. If it occurs, as is unusual, that the forehead patch is not placed in the middle line, there will probably be want of bilateral symmetry in the markings of the feet. The face marking may be a simple small and central star. This star may be developed as a large patch, and it may form wings; these wings may be wholly one-sided. Now, all four feet may be involved or only some or one. The hind feet almost always are more extensively involved than the fore ones. The horse figured (p. 1479) in the present paper shows what we may describe as one of the commonest types. There is a small bar on the forehead, and it is central. One foot only is without any stocking, and it is the near or right one. I attach much importance to any conspicuous deviations from symmetry in these matters. If, for instance, the face-patch is on one side only and the two feet on one side show stockings while those on the other retain colour, it may, I believe, be suspected that the animal is not developed with perfect bilateral symmetry in other respects. He may differ from his fellows, as a left-handed man differs from a right-handed. He may be a sinistral horse, and if so, although he may be strong and efficient for work, he will move more or less awkwardly and not be pleasant to ride. As my observations have been made for the most

part in driving about London streets, I have not had, as a rule, any opportunities for making inquiries as to the animal's gait. Out of the few instances in which such information has been obtainable I have met with several which remarkably confirmed my conjectures from the animal's feet and face. Of examples in which both fore feet had stockings and both hind ones were wholly exempt I have seen only two or three.

The faces of all animals, especially our domestic ones, should be carefully observed and notes and photographs should be taken. There is much to be learnt from them. The face often preserves a pattern when little or none is discoverable on the body. Animals with tails often show at their tips colour resembling that of their noses or foreheads. Dogs very often show the white star or a long central white forehead-streak extending from nose to nape. Black cats often have snow-white paws, the hinder ones, like the feet of horses, being the longer ones.

A Clinical Lecture
ON
DERMATITIS ARTEFACTA.

BY
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[*With Special Coloured Plate.*]

DURING the last three years several cases of dermatitis artefacta have come under my notice in hospital and in private. There is, perhaps, no class of case attended by so many difficulties and where the exercise of tact on the part of the doctor is so essential. The apparent absence of any reason for self-mutilation very often, indeed one may say usually misleads the attending physician, and diagnosis is most often made only when the hard-hearted stranger is called in consultation.

I would first dismiss a class of artefact eruptions which really depends upon a mental delusion. I had last winter in my wards a woman, aged 52, whose chest was torn and scored in all directions by her nails in her endeavours to extract from her skin the parasites which she believed to be infesting it. There was in her case no concealment; she explained the lesions at once. Two or three of these cases have occurred in my experience, and I think the prognosis is invariably bad. This patient refused to stay in the ward, and although I restrained her until her relatives were consulted, they could not be induced to allow her to be sent, as I thought she should be sent, to an asylum. The next case is a relatively uninteresting one. The patient was a woman of low mental development, and at intervals she suffered from an eruption on her legs, an eruption which had evidently aroused sympathy and interest at home. The lesions were simply long scratches with her nails, and as she persisted in her statement that there was no itching connected with the eruption, it was pretty obvious that they were intentionally inflicted. I kept her in my ward a few days, and had her watched. The eruption disappeared, but reappeared soon after she returned home, and I fear she will, like the first case, eventually find her way into an asylum.

I am, fortunately, able to give illustrations from casts made by my secretary of three very typical cases, where the nature of the eruption was at first something of a mystery, the patients all along pretending complete ignorance of the cause. I have, for reasons which will be obvious, felt it necessary to paraphrase the cases, but I can vouch for the essential accuracy of the facts.

C. V., a girl aged 16, was knocked down in the street by a motor car. Her elbow was bruised, and she was taken to a hospital, where the joint was examined both manually and by the *x* rays without disclosing evidence of any serious injury. A correspondence relative to the accident began, and some of it was conducted in a less diplomatic manner than was altogether wise. While this correspondence was going on the arm was getting better; the stiffness was disappearing, and the arm becoming moderately useful again. One day there appeared around the affected joint a group of lesions, just such as those depicted in the illustration. The next day there were more of them, and the surgeon in whose care the patient was sent her to me for an opinion. I at once suspected the nature of the eruption, but said nothing to the girl or her parents; indeed, I did not see the latter at this time. But I pointed out to the students sitting around me the probable nature of the eruption, using language which she was not likely to comprehend. Then, returning to simpler speech, I explained to the students that such cases were very often symmetrical, and that lesions having appeared in the neighbourhood of one joint, were likely to appear around the corresponding one on the other side. This in due course they did. I then pointed out to the students that in some cases the eruption spread to one of the other limbs, usually crossing the body in doing so, and two days later she came up with the eruption around the knee of the opposite side to that originally injured. I thought matters had now gone far enough to enable me to express a definite opinion as to the cause of the eruptions. I took her into my ward and had the cast from which the illustration is taken made. No further lesions appeared; those present soon disappeared, and there was no action in the Court of Session. I did not succeed in finding out what was the particular chemical she used.

The next case was a young lady whom I saw in consultation in the North of Scotland because of an eruption upon her face, arms, and chest. It was of markedly linear type, and when we retired to another room to discuss the case, I at once said to the doctor, "I believe she is doing that herself." Whereupon he replied, "I suspected it." She was a handsome, plump, healthy girl of 22, in good circumstances, and had no mental worries that either the doctor or her relatives could discover. She was carefully watched, and actually detected by one of her sisters applying nitric acid to her skin with a stick. I had the advantage in this case of having the opinion in consultation of an eminent neurologist, and neither he nor I could recall a case in which so much mutilation of the *face* had been produced. Under careful and close nursing she recovered, half admitted her share in the transaction, and a few months later was brought to me again with a similar eruption. While ready to admit that she had had something to do with the first, she stoutly denied anything of the sort in connexion with the later attack.

The next case was one which was instructive because of the character of the patient. It is well represented in the Plate (E.N.), and no one of experience, observing the bizarre character of the lesions, could possibly doubt that some extraordinary cause had been at work. This girl was a children's nurse. She had been many years with one family, was a devoted nurse, and was implicitly trusted by the parents, who could go away for days or weeks, leaving the children confidently in her care. For months these lesions continued to come out on different parts of the body, running a comparatively short course, and disappearing to give place to fresh ones in some other part. This patient was actually permitting arrangements to be made for her admission to the Longmore Hospital for Incurables, when I was asked to admit her to my ward, and, as said above, at once diagnosed self-infliction. No lesions appeared after her admission, and she had therefore evidently not brought her chemical with her. We had some reason to believe that the active agent was lysol, combined with friction.

The other case illustrated is perhaps the most instructive of all, and I have to thank her doctor, in the late Sir T. Granger Stewart's words, a "friend and former pupil," for permission to publish in full the correspondence which passed between us about the case; for I think nothing could give a better account of the attitude of the family doctor to such patients. It is the attitude which all of us under similar circumstances tend to adopt.

The correspondence opened with a letter from my friend (Dr. A.) from a manufacturing town in the Midlands, asking me to take under my care in hospital a case which had exhausted his (more than average) ability, and in due course the patient arrived.

The first letter is from Dr. A.'s partner, Dr. B.

I.—*From Dr. B.*

March 8th, 1909.

Dear Dr. Walker,

As I have had more to do with Miss S. than Dr. A. has, I write a short note about her and her eruption. Six months ago she sustained a small burn with pure carbolic acid on the

right forefinger. This was slow in healing, but did eventually heal. A week later a small area of skin near the burn simply sloughed off—size of sixpence. This was slow of healing, and as it healed another small place began. Bit after bit of the skin of the finger similarly died sloughed off, and the raw area would heal slowly. Then as the forefinger got finished the others began, and bit by bit of skin sloughed off, and the area would slowly heal, till now there has been a complete renewal of skin on all the fingers. Then the back of the hand, then part of the palm, then up the forearm, where now it is. The palm, the hand, and the thumb have not been affected much.

As to treatment, I have tried everything local in the way of ointments, antiseptics wet and dry, plain dry dressings and plain wet (plain water) dressings, and I think the latter has been the most generally useful. I have dressed the arm and hand at least once daily always, usually twice daily, occasionally three times daily.

Internals—iron, arsenic (up to 18 gr. thrice daily), pot. iodide (for no reason), strychnine, calcium chloride, calcium iodide—without the slightest benefit. A week ago I put her on Levurine, thereafter the arm got worse for a day or two, but since then has improved, and no fresh place has begun, though there is a suspicion of one further up. The condition quite beats me. I cannot describe exactly how the sloughing places begin; I know of no terminology which fits them at all. My attempts at prevention have not succeeded. This week, as I say, the condition has looked much better, and there are no fresh places. May it continue so.

Yours truly,

——

II.—*From Dr. Walker to Dr. A.*

March 12th, 1909.

Dear A.,

I am afraid you will be surprised at my diagnosis of your case. I believe the eruption is self-inflicted. It has exactly the characteristics of such eruptions of which I have seen quite a number, quite often in girls who seem to have absolutely no reason for doing such a thing. It is unusual to see it on the right hand, but I elicited from the girl casually that she can use both hands for many things.

Yours truly,
NORMAN WALKER.

III.—*From Dr. A.*

March 14th, 1909.

Dear Dr. Walker,

I can positively assure you that this is not a case of self-infliction. We have dressed it every day—sometimes twice—for over six months. At an early stage I suggested the need of disproving self-infliction, and so we used to keep a note of the number of reverses in the bandages, etc. Later I got special plaster made, and put it on in peculiar ways, and finally we were ashamed to have been so persistent in our suspicion which all produced absolutely negative results. No, I think you will find this a genuine case of dermatitis ulcerosa, or gangrenosa secondary to a primary carbolic acid burn of forefinger, which has spread from finger to finger, and thence to dorsum, and next front of hand, then to wrist, with an occasional arrested patch arising on trunk, etc. A point of much importance possibly is, that her father was a paroxysmal haematuric; so is her eldest brother when run down, at other times perfectly healthy. Her younger brother has had severe purpura haemorrhagica over limbs—not trunk. The patient herself, up to a year ago, was a martyr to small pea-sized pimples on shins, which mostly ulcerated. I fancy you will find her genuine; she is one of the most industrious, sensible, and conscientious girls in this town.

Yours sincerely,

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IV.—*From Dr. Walker to Dr. A.*

March 26th, 1909.

Dear A.,

I have delayed writing to you because I have always been hoping to be able to confound you with proof. I remain convinced, but up to now, in spite of all sorts of inquiries, I have been unable to detect how she manages—*in the ward*—to continue to produce those lesions. It will interest you to hear that the junior nurses are on your side, but I am supported by my ward sister, who is consequently on her mettle to justify her chief. She has, by the way, that marked anaesthesia of the palate found in most of these hysterical cases. As soon as there is anything to report I shall write again.

Yours truly,
NORMAN WALKER.

V.—*From Dr. Walker to Dr. A.*

March 28th, 1909.

Dear A.,

I am afraid this looks as if I were playing to the gallery, but it is merely coincidence. On the night of the day on which I wrote you, Sister found concealed in your patient's handkerchief a bottle of pure carbolic acid, which she told a probationer was scent, afterwards said it was for her corns. Last night another bottle was found, so I think you must give in. It is inexplicable why girls do these things, and nearly all the cases I have had have been girls bearing just the same exemplary character that yours does. We shall now arrange for her treatment on general medical lines, and I hope to send her back to you all right.

Yours truly,
NORMAN WALKER.

VI.—*From Dr. A. to Dr. Walker.*

March 29th, 1909.

Dear Dr. Walker,

The coincidence makes me feel inclined to say something very severe about human nature in regard to gratitude for past kindnesses. Let me know the final scene.

Yours very sincerely,

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VII.—*From Dr. Walker to Dr. A.*

April 13th, 1909.

Dear A.,

Your patient goes home this afternoon. I had a few words in private with her this morning and she promised not to play any more with carbolic. I think six months on a farm would do her moral fibre a lot of good. I wish you would let me know how the anaesthesia of her palate goes on.

Yours truly,
NORMAN WALKER.

VIII.—*From Dr. A. to Dr. Walker.*

May 1st, 1909.

Dear Dr. Walker,

I am watching Miss ——. Anaesthesia still exists or persists. She says you said nothing to her *re* cause. I am surprised at this girl—however, she possesses an arm which should make her feel foolish many times before her life terminates.

Yours very truly,

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It would be difficult to find a case more instructive, and I trust that the candid confessions of Dr. A. and myself—for, needless to say, neither of us had in contemplation the publication of our correspondence—will prove useful to others. Here was a young woman in apparently good health, hard working, "sensible and conscientious." In spite of this character, which he himself gives her, the doctor's suspicions are aroused, and he takes measures to justify or clear them away. He continues these till he is "ashamed of his suspicions," and eventually sends the patient on to his old teacher. And now I come in. The moment I saw the eruption I not only suspected, but felt convinced that the eruption was self-inflicted, and I expected, as is plain from the terms of my first letter, that I would solve the mystery immediately. In my ward she was under my daily observation, under the charge of a most experienced Sister, who was equally convinced of the nature of the eruption, and was, therefore, on her mettle to detect the cause, and who had further to combat the feelings of her junior nurses—that it was almost wicked to cherish such suspicions of a girl so nice-looking, quiet, and respectable. I flatter myself that my own detective abilities are not below the average, and yet for over a fortnight that girl successfully kept us at bay. Her box was searched, her clothes were searched, her bed was searched while she was in her bath, and by the simple expedient of always transferring the bottle to her handkerchief, she hoodwinked us all. Dr. A. and I hope that this relation of a clever deception will stimulate others who in similar cases have their suspicions aroused to persevere with their inquiries under repeated discouragement.

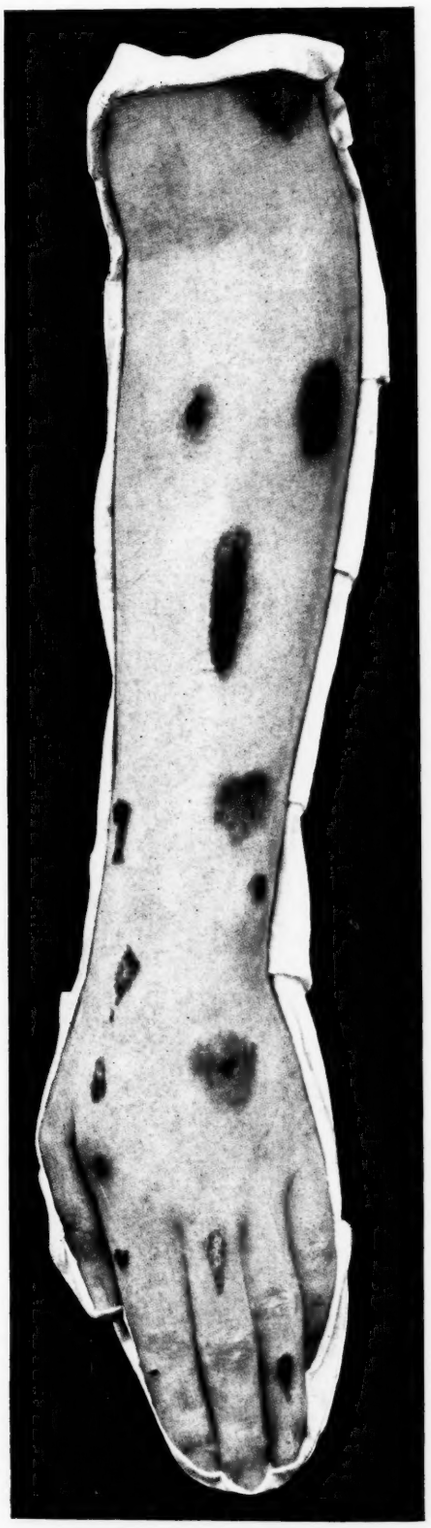
These latter cases are all hysterical, and usually show the more usual features of that disease. All my cases showed marked anaesthesia of the palate They are not easy cases to deal with, for it is not a pleasant matter to tell a girl's mother that the eruption which has been giving so much trouble and annoyance in the house is all produced by the patient. Too often the doctor is simply not believed, a more sympathetic one replaces him, and the eruption goes on as before.

Treatment at home is no use; the patients are always able to deceive their relatives, and their fruitless efforts to discover the cause are urged against the doctor's diagnosis. They should be put in a home under the care of a very capable nurse, whose confidence in herself and in the doctor is complete. The nurse must watch the patient as one watches a dipsomaniac, and must be on her guard against the most ingenious devices to procure chemical irritants.

In my own experience carbolic acid is the application most frequently made. It is easily—too easily—procured, and the effects can be varied in an interesting fashion by the amount used. But simple rubbing will produce lesions, provided it is continued long enough; therefore the patient must be watched day and night. Under this régime the eruption will soon go, but a prolonged course of nursing and general tonic treatment is required before the patient seems to get rid of this extraordinary desire to mutilate her own person.

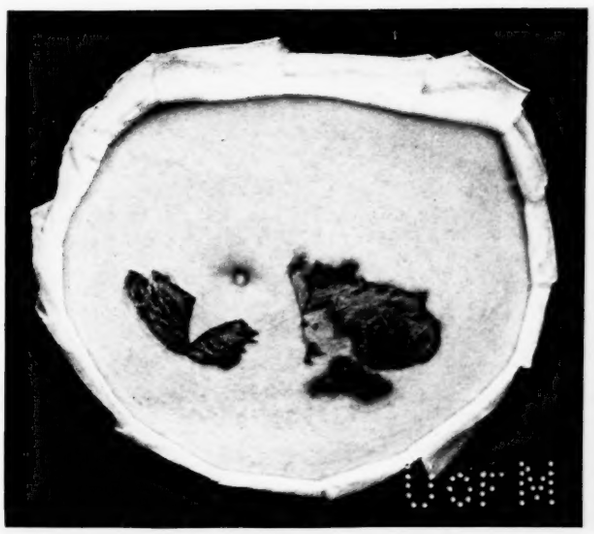
TO ILLUSTRATE DR. NORMAN WALKER'S PAPER.

Case C. V.



Case F. S.

Case E. N.



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MENTAL HEALING.

MANY volumes would be required if the history of healing by spiritual or mental influence were to be fully written. Here only a brief sketch of the subject can be given.

The general term, "mental healing," is convenient, as in it may be included all methods of using the influence of the mind on the body for the treatment of disease. Among these the operation of faith is the most conspicuous and the most powerful. It may be faith in the supposed evil influence which causes the disease, or in the beneficent force of a more powerful influence, or in the knowledge and skill of a human healer, or, again, in the potency of physical remedies administered in such a way as to produce an effect on the mind of the patient. The latent forces that produce the effect are in the patient himself; the healing agency, be it a person, a shrine, a sacred spring, or what not, is only the motive power which brings these forces into play. Of the nature and mode of operation of these forces we at present know little or nothing. But in mental healing of all kinds the active agent is faith. It is, in short, the patient's faith that makes him whole, when this desirable result is brought about.

Although religion most commonly supplies the condition which begets faith and makes it a curative agent, other mental processes, notably fear and joy, may operate on the body in a way that eases pain, and may even cure disease. Of this we have everyday experience. The power of suggestion, which is often spoken of as if it were a new discovery, is as old as humanity. It is an innate quality in human nature, and depends for its causation and effect on the structure of the human mind. The power of exciting belief in others, whether we call it personal magnetism or by any other name, is a gift which may be beneficent or dangerous according to circumstances. It may relieve suffering, or it may cause disease by mental contagion. Of this there are numerous examples in history; we need only mention the epidemics of dancing madness, flagellation, and the like, and the children's crusades of the Middle Ages. It may turn a sinner to righteousness or mislead whole peoples to their own undoing. It is the power of suggestion that gives many who undertake the treatment of disease, whether they are within or without the fold of medicine, a power of healing or of mitigating pain which is not found in others. Suggestion, also, has much to do with the action of remedies; most of us have seen a restless patient soothed to sleep by a hypodermic injection of water. It is suggestion that makes every new treatment do good for a time. Hence the vaunted "cures" of cancer, consumption, and so forth. It was the knowledge of the natural tendency to faith in the new and unknown that led the wise old French physician to say to a patient, *Hâtez vous de prendre ce remède pendant qu'il guérit.*

THE MIRACLE OF CURE.

Mr. Matthew Arnold said in his airy way that "Miracles do not happen." He stole the phrase from Renan, but it is difficult at this time of day to say anything that some one has not said before. Besides, it matters little who said it, for it is not true. Miracles do happen, and doubtless have happened ever since the brain of this "foolish-compounded clay, man" began to wrestle with the problems of disease and death. Before going further, it will be well to follow the advice so earnestly given by John Locke, and "define our terms." What is a miracle? The discussion of this question from the theological point of view lies altogether outside our province. The word "miracle" is used here in its etymological sense to denote something marvellous and opposed to common experience, that at first sight cannot be accounted for by the agency of natural causes.

Here we must be allowed to remark that much shallow nonsense is often talked about "violations of the laws of Nature," as if the laws of Nature were anything more than the "laws" which man formulates from the phenomena which he observes. But human observation can err, and has often erred; and it is conceivable that the law of gravitation itself may some day have to be amended, if not repealed. "True science," as Charcot said, "is a foe to systematic negation, which the morrow may cause to melt away in the limits of its new triumphs." What appears to be miracle to-day may therefore cease to be a miracle to-morrow. Diseases now incurable by any therapeutic means at our disposal will, there is every reason to hope, be curable by medical art in the future. If such a disease were to be cured now by some force different from the resources which medicine has at command, it is not necessary to assume that the agency which works the cure is supernatural. The most orthodox theologians will admit that *miracula non sunt multiplicanda praeter necessitatem.*

In the sense in which the word is used here miracles do not only happen, but they happen frequently, and in almost infinite variety of circumstances. If human testimony is worth anything, cures of a marvellous nature are wrought at Lourdes, St. Winefride's Well and other Christian shrines. Similar "miracles" are wrought at the tombs of Mussulman Marabouts, as they were at the healing shrines of ancient Greece and in the temples of Aesculapius in Rome. Cures of precisely the same kind are wrought by mesmerism, and other forms of faith healing in which the sacred element is altogether wanting. Could there be a more authentic "miracle" than the restoration of Harriet Martineau, a professed atheist and a strong minded woman of the most pronounced type, to health by means of mesmerism, after long disablement by a pelvic tumour? The tumour, it is true, was found in her body after her death, but what of that? It had ceased to trouble her, and she may for practical purposes be counted a "cure." Brodie cured many bedridden patients by the simple process of bidding them get up and walk. There is nothing more supernatural in such occurrences than there is in the effect which arsenic has on pemphigus—an effect which was once described by a surgeon of the highest eminence as an illustration of the "miracle of cure."

A slight sketch of the attitude of man towards disease may help to a clearer understanding of the true significance of forces which are at work to-day as they have been since the human race began to crawl on the earth. The expression changes, but the thing itself remains the same through all the changing forms of belief.

DEMONOLOGY AND DISEASE.

The earliest conception of disease seems to have been that evil spirits for the time being took possession of the body. This general notion expressed itself in different ways. Where a disease was sufficiently characteristic in its manifestations to stamp it with an individuality of its own a special demon was invoked as the explanation. This belief lingered into times well within the range of recorded history, and, indeed, traces of it survive at the present day. The Hindus built temples to the Goddess of Small-pox, and the Romans had no fewer than three shrines dedicated to the Goddess of Fever, which was doubtless malaria. At the present day there is a church in Rome dedicated to Our Lady of Fever, which is a lineal descendant of these shrines. Another belief was that the demon of disease was introduced by malevolent persons by means of magic. Again, one finds in different tribes or races such beliefs as that disease was caused by the spirits of the dead, or the spirits of animals killed in hunting, invading the living. These theories must be carefully distinguished from the much later concept that disease is a punishment inflicted by an angry Deity.

This notion of the causation of disease led naturally to a system of treatment directed to the dislodgement of the demoniac intruder. To that end every effort was made to make his usurped abode as unpleasant as possible. The patient was beaten, starved, smoked with evil-smelling substances, and drenched with every foul thing that the savage imagination could think of. The fumigation treatment is illustrated by the story in the Apocrypha in which Tobias is said to have freed his bride from a demon by taking the ashes of the perfumes and putting the heart and the liver of the fish thereupon and making a smoke therewith, "the which smell when the evil spirit had smelled he fled into the utmost parts of Egypt." The beating out of evil spirits, in which some ingenious persons detect the beginning of massage, was used in comparatively modern days in the exorcisms which were practised on the supposed victims of demoniacal possession. With what severity these poor sufferers from hysteria and other conditions grouped by modern medicine under the head of

neuroses were treated, may be read by the curious in the records of the possessed nuns of Loudun in the reign of the Sun-King of France. A relic of the same concept of the origin of disease is perhaps to be seen in the brutal treatment that used to be the lot of unhappy victims of mental disease till their chains were struck off by Esquirol, and other cruel methods of restraint were finally abolished by the efforts of Tuke and Conolly. In the matter of medication, too, the system of making the body an uncomfortable abode for the diabolical tenant persisted long after the belief on which it was founded had died out, and is not quite extinct at the present day. The horrible concoctions prescribed by doctors in the Middle Ages might seem to have been intended for the forcible eviction of evil spirits. The faith of modern hospital patients in the efficacy of the physic given them is often in direct proportion to its nastiness.

The demonological theory of disease held sway over the minds of men for thousands of years. If it cannot exactly be called a *zolie hypothèse*, as the lisping French philosopher called the existence of a Creator, at any rate like that pretty hypothesis it supplied a convenient explanation of many things. But if the simple pathology of primitive man causes us amusement, the smile dies on our lips when we reflect on the appalling consequences of that belief translated into action. It was the notion that disease was caused by demons that led to the belief in witchcraft, which again survived in full vigour till the seventeenth century, and is not by any means extinct in this century of light. The belief in witchcraft caused the persecution and judicial murder of countless human beings, chiefly old women guilty of nothing worse than eccentricity or madness. In many neolithic skulls there are round holes, evidently made during the life of the owner, for signs of repair are visible about the edges. These show that the operation called by modern surgeons trephining was practised by prehistoric man. There is some difference of opinion among the learned as to the purpose of the procedure. We think we are right in saying that Sir Victor Horsley has expressed the opinion that it was done, as it often is at the present day, for the cure of epilepsy. Broca, who is inclined to regard it as a form of religious rite or initiation, admits that it may also have been practised with the object of providing an outlet for the escape of the imprisoned demon which caused convulsions.

Faith Healing in Antiquity.

It is usually said that medicine in its origin was a form of priestcraft; in other words, that the first physicians were priests. It is an equally plausible conjecture that the first priests were physicians. In the medicine men of the savages the priestly and the medical characters are mingled. The theory that disease is caused by spirits would naturally lead to the use of spiritual means of cure. This would be more especially the case where it was held that the evil spirit had been driven into a man's body by magical spells. Obviously, the way to deal with such a situation would be to administer a more potent magic. In this we may possibly discern the first dawn of the theory that like cures like. Here, again, cure by charms, spells, and amulets, the practice of which was not so long ago universal, is still widely prevalent in one shape or another to a great extent.

Of faith-healing as practised in antiquity the best illustrations are to be found in the old Greek Temples of Asklepios. The most famous of these shrines was that in the valley of Epidauros, situated in Argos in the south-eastern part of Greece, about three miles from the coast. This temple enjoyed the highest repute as a place of healing for many centuries till its ineffectual fires paled in the beams of the rising sun of Christianity. At first this temple was probably almost exclusively a shrine to which sufferers resorted in the hope that the God of Healing would take pity on them and rid them of their disease. The ministers of the shrine were priests, and their ministrations were mostly of a distinctly spiritual character. Gradually the priest became more and more merged in the physician, and the temple itself was, at any rate to a large extent, transformed into a clinical hospital. The original character of the shrine was, however, maintained in the eyes of the faithful by the kind of pious fraud that seems to be an inevitable feature in the evolution of places of spiritual medication. Instead of the god exercising his power of healing directly, in answer to the prayer of the afflicted believer, he cured them indirectly, just like a human physician, by giving them a prescription. Asklepios did not, indeed, scrawl a hieroglyphic formula to be deciphered only by the initiated; he revealed in a dream the mode of treatment to be followed. The patients spent the night in the holy place amid mystical surroundings well calculated to screw the mind up to the highest pitch of expectancy. To sufferers worn by illness and animated by hope dreams would come easily.

This dream therapeusis was known as incubation. An excellent account of this is given by Miss Mary Hamilton in her work *Incubation and the Cure of Disease in Pagan Temples and Christian Churches*.[1] She traces the connexion between healing and incubation to the fact that the deities in whose temples the rite was practised were heroes who had gone down into the earth; hence they were called Chthonian. They were believed in this way to become endowed with the powers of the earth, chief among which were the sending of dreams and the gift of healing. The attribution of healing powers to the earth would seem to have had its origin in the fact that from the bosom of the earth spring herbs which cure disease or cause death.

The earliest literary mention of incubation is found in the *Plutus* of Aristophanes (B.C. 388). The following is the description as paraphrased by Mr. W. H. D. Rouse[2]:—

"All round," says Carion in the comedy, "were people sick of all manner of diseases. In comes the verger, puts out the lights, and bids us sleep; and, quotha, if you hear a noise, keep a quiet tongue. So we all composed ourselves decently for sleep. But sleep I could not, for my eye caught a pot of pease which stood just behind the old gammer's head, and I had a monstrous craving to crawl after it. Then I looked up, and what should I see but the priest grabbing the cakes and figs from the sacred table. Then he made the round of all the altars, to see if there was a biscuit or two left, and these he consecrated into a bag he had with him. I looked on the performance with much awe, and up I got to fetch the pease. 'You bold, bad man,' says the other, 'weren't you afraid of the god?' 'Afraid?' 'Yes, afraid that he might get there first with his garlands; the priest showed me the way, you see.' Well, when gammer heard the noise I made, she got hold and tried to pull it away; but I gave a hiss and bit her, as though I had been one of those hooded snakes." Carion then goes on to tell how the god, accompanied by his daughters Iaso and Panacea, went round inspecting all the cases. Mr. Rouse omits a short passage here, but it is so much a part of the picture that we venture to replace it. Carion was afflicted with flatulence, and just as the god came near, his inflated intestine allowed its gaseous contents to escape with a loud explosion. Iaso blushed a little, while Panacea turned aside, stopping her nose. The god, however, paid no heed, because, as Carion explains, he is accustomed to the flavour of excrements. Asklepios examined the patients with much attention; a slave who accompanied him placed ready to his hand a stone mortar, a pestle, and a small box. This probably contained remedies. He first prepared an ointment for one of the patient's eyes; the application caused such smarting that the man tried to run away, but the god said to him with a laugh, "Stay there with your ointment: thus you will not go and perjure yourself before the assembly." Going to the next bed where Plutus lay the god wiped the patient's eyes with a clean cloth while Panacea covered his head and face with a purple veil; then the god whistled and two enormous snakes came from the sanctuary and sliding gently under the veil, licked the eyelids of the patient. Soon Plutus arose, having recovered his sight. Carion praises the god because while he had quickly unscaled the eyes of Plutus he had made the impostor Neoclides more blind than before.

It must be remembered that Aristophanes was the Rabelais of ancient Greece, and neither in one case nor the other must it be assumed that the ridicule of sacred things implied disbelief in religion. It is impossible to conceive that the comedy could have been played at Athens had it been thought that it outraged public sentiment. The miracle plays of the Middle Ages and the licentious stories about persons who professed holiness

[1] London, 1906.

[2] *Greek Votive Offerings: An Essay in the History of Greek Religion*. Cambridge, 1902, p. 201.

were in like manner accepted by the people as jokes. The faith of men in those days was so deep that they could afford to joke about it. What Don Pedro says about Benedick in *Much Ado about Nothing*—"The man doth fear God; howsoever, it seems not in him by some large jests he will make"—might have been said with truth of mediaeval man, and doubtless of the Athenians in the days of Aristophanes.

The most famous temple of Asklepios was at Epidaurus, but his shrines were very numerous, and it is estimated that even before the time of Alexander there were 186 of them; later the number amounted to 320. The whole territory of Epidaurus was held sacred to Apollo, just as the country of which Lourdes is the centre is looked upon as under the special patronage of the Blessed Virgin. The temple may be taken as the type of the Greek shrines of healing, and an account of it may serve to give an idea of the others. The temple dates from the beginning of the fourth century B.C., but the cult of the god at Epidaurus is much older than that.

The buildings comprised, in addition to the temple proper, a *Tholos* or sacred well of Asklepios, and an *Abaton* or hospital for the pilgrims who visited the shrine in search of health. The chief feature within the temple was a great statue of Asklepios, fashioned of ivory and gold, by the famous sculptor Thrasymedes of Paros. The god was represented seated on a throne with a golden serpent rising up towards his left hand and a dog lying on his right. These animals had a prominent place in the symbolism of the cult. The serpent has been interpreted as signifying the spirit of the earth from which comes the mysterious power of life; as for the dog, some explain his presence by the legend that the god was guarded by that animal when forsaken by his mother in infancy, while others hold that he was regarded as sacred because he was supposed to cure sores by licking them. Antivivisectionists might perhaps find a more sinister meaning in the special association of the dog with medicine. A harmless species of large yellow snake peculiar to the Epidaurian valley, which has been seen within the last century but is now believed to be extinct, was regarded as the incarnation of the god and kept in the precincts of the temple. These reptiles were held in the greatest veneration by devotees, who fed them with cakes. Both serpents and dogs seemed to have been trained to lick sores. The *Tholos* was a circular temple appropriately adorned with paintings of Methe (drunkenness) and Eros (love), two chief sources of the diseases which afflict mankind. Some believe that the Tholos was the building in which was situated the sacred spring—the pump-room, in fact, where sufferers drank the healing waters.

The *Abaton* was a portico or gallery open on one side towards the south, the roof of which was supported by a double row of columns. It consisted of two chambers or wards—one for men, the other for women—which Dr. Caton in his book, *The Temples and Ritual of Asklepios*, estimates might have sufficed for the accommodation of 180 pilgrims. Besides these wards or dormitories there were a number of apartments in four buildings, each opening into a quadrangle, which he conjectures to have been hostels where patients suffering from comparatively slight ailments or convalescents found shelter. There was also a theatre, the ruins of which are more impressive than those of any other in Greece. The Greeks evidently knew the hygienic effect of amusement, and full provision for the application of that therapeutic resource was made at Epidaurus. The open porticos in which the patients lay may perhaps be taken to show that they also knew the value of open-air treatment.

The temple had a large staff of priests for the performance of the ritual. The chief priest, or Hierophant, was sometimes, but not always, a physician; in some of the subordinate officials the sacerdotal and medical characters were also united. M. Cavvadia, who has given an account of excavations at the side of the temple of Epidaurus, maintains, however, that the combination of the function of the priest and the physicians belongs to a late period in the history of the temple. Up to the dawn of the Christian era the miracle of cure was, he says, wrought at Epidaurus and the other Asklepieia entirely by prayer.

In any case, the treatment was largely of the nature of faith healing. An essential part of the ceremony was, as it should be in all well-regulated practice, the fee, which took the form of offerings of one kind or another to the god, represented by his ministers. The performance of religious rites and lustrations prepared the suppliant for the operation of the divine power. At night, when the patients were gathered together in the long ward of the Abaton, priests recited prayers, and then put out the lights with an injunction to go to sleep and hope for dreams in which the god should appear and tell them how they might find relief. Whether hypnotism played a part in the ritual of cure can only be conjectured; it is clear, however, that nothing was left undone to create an atmosphere of suggestibility. Many inscriptions recording cures have been discovered, and several of these speak of dreams in which wholesome counsel was given by the god. In the case of the less imaginative patients it is not unlikely that the influence of the mystic surroundings was helped by the use of opium, or other drowsy syrups, causing vivid dreams. Readers of Théophile Gautier's *Paradis Artificiels* will remember how the effect of hachisch manifested itself by the intensification of actual impressions; thus, a chord struck on a piano was magnified into the music of a heavenly choir; a question asked by a bystander in an ordinary tone became the voice of doom echoing through infinite space. Men and women, worn out by suffering and possessed by an eager faith in the healing power of Asklepios, would, when under the influence of such a drug, need no elaborate *mise-en-scène* to make them see visions.

The cures wrought at Epidaurus are attested by inscriptions on stone stelae placed where the sick folk seeking for relief could read them and be impressed by the power of the god. It is evident that the priests of Asklepios knew the power of suggestion. Over forty of these inscriptions have been discovered. Among the cures recorded are, as was to be expected, cases of paralysis. One case of paralysis is an interesting example of the influence of the mind on the body. A lame man named Nikanor was sitting wide awake; a naughty boy ran off with his crutch; "but," says the inscription, "Nikanor got up, pursued him, and so was cured." By the power of the god stones were got rid of by the natural passages; barren women, anxious for offspring, dreamed that snakes came and lay upon their bellies, and straightway became pregnant. In one case the woman dreamed that the god lifted up her dress and touched her belly; "so," it is added, "she bore a son to Arybdas." Such dreams recall the story of the ladies who, on their way to a French shrine famous for the cure of barrenness, were met by someone who told them it was no use to go there for children, as *le grand chanoine qui les faisait est mort*.

Asklepios seems also to have been a pioneer in abdominal surgery. Thus we hear of his relieving a woman of a tapeworm by laparotomy, of his opening a woman who thought she was pregnant and removing two dishfuls of worms, and of his operating successfully for abdominal abscess. In all these cases the wound was duly stitched up. He extracted spear-heads from the face and arrows from the lung. In these cases and the one of cure of stone, the sufferer is said to have carried away the offending object in his hand. The cure of blindness is frequently recorded and the god did not disdain to make hair grow on bald heads. A remarkable case is recorded of the cure of gout by a goose which bit the foot of the patient when he was walking about the temple and made it bleed; we do not know whether any symbolic significance is to be attached to this goose. Many of the cures, it must be admitted, read strangely like the testimonials to the skill of quacks and the virtues of secret remedies which at the present day deface our landscapes and occupy so large a place in newspapers. One feature in the character of Asklepios which should commend him to the admiration of the medical profession is his insistence on the payment of the proper fee. Like mortal doctors he had ungrateful patients, but he knew how to deal with them. Thus a man cured of blindness who would not pay, was smitten blind again and remained so till he had performed the needful ceremony.

While many of the cures recorded on the stelae are absurdly fabulous, in many the working of suggestion can be clearly seen. In others the prescription of the god consists of simple remedies mostly of a dietetic and hygienic character. Mention is sometimes made of physicians as officials of the temple, but this is excep-

tional. Still, as time went on, the theurgic element tended more and more to give place to natural methods of cure.

FAITH HEALING IN THE ROMAN EMPIRE.

Before the ancient Romans came under the influence of Greek thought they were, as described by Sir Clifford Allbutt in his FitzPatrick Lectures: "A people entrenched . . . in a folk-lore and a folk-medicine of their own, and worshipping a mob of pallid deities each, as elsewhere so also in medicine, personating rather than creating not only every chief system and function of the body, but every stage of each. For each stage of labour there was its peculiar deity." Every part of the body, each limb, and even the "harmless, unnecessary navel has its divine warden." Even the itch had a goddess peculiar to itself. They had no doctors, but each head of a family was supposed to look after his wife, his children, and his slaves in illness. In this household medicine healing by charms figured largely. Thus when Cato's panacea, cabbage, failed to reduce a dislocation or heal a fracture, a green reed was broken in the middle, each part being held in contact with the injured limb while the patient said the following words, *Daries, dardaries, astataries, Dissunapiter*, till the pieces of the reed united; these were then made into a ligature and applied to the limb. This cured the mischief, but every day for some time after the patient had to repeat the incantation already quoted or the following: *Huat, hanat huat ista pista sista, domiabo damnaustra*: or *Huat, haut haut ista sis tar sis ardannabon dunnaustra.*

The worship of Asklepios was introduced into Rome in 293 B.C., when the city was made desolate by a terrible pestilence. In this extremity messengers were sent to Epidaurus, who brought back with them the healer in the form of one of the sacred serpents. The snake left the ship and went on shore in the Tiber Island, now called the Island of San Bartolomeo. On it now stands a monastery attached to which is the large hospital of the Fate Bene Fratelli, belonging to the brothers of St. John of God. A conjectural restoration of the original temple was reproduced in an illustration published in the BRITISH MEDICAL JOURNAL, vol. i, 1908, p. 1486, in an article entitled "The Evolution of the Hospital."

The Roman temple does not seem to have won anything like the fame of Epidaurus, but records of the same character as those commemorated on the stelae of Epidaurus have been found. At a later day the centre of the cult was transferred to Pergamos in Asia Minor. Of the treatment there we have detailed descriptions in the *Sacred Orations* of Aristeides written in the second century A.D. after his recovery from an illness which lasted seventeen years. He was evidently a neurasthenic of the type we are apt to consider as a product of our modern civilization.

The treatment was of the usual character, being a mixture of faith healing and medical treatment, in which diet, river bathing, and bleeding played a considerable part. He was also anointed with mud or sand, and made to take exercise in the open air by walking barefoot and riding. Nor was drugging omitted; Aristeides says he cannot remember the numberless medicines ordered by the god. But he attributed the greater part of his cure to the healing agency of the god. Faith healing and medicine are mixed in a somewhat comical manner in the following passage from his *Eulogy* to Asklepios:

> Truly the wonderful plays the leading part in the visitations of the god. He makes one man drink gypsum, another hemlock, while another has to strip and wash in cold water, when you would think he needed heat. I myself have been honoured in this way. He has stopped catarrh and chills by river and sea bathing; he has cured prostration with long walks; when I have been without food for some time he has added purging; and when I have been unable to breathe, I have been told to read and write.[1]

The cult of Asklepios lasted, six or seven centuries and the reputation of Epidaurus for cures equalled that of the most famous of mediaeval or modern shrines. Walter Pater's picture of the methods of healing pursued in the Temples of Aesculapius in the transition period between paganism and Christianity is worth quoting here. In *Marius the Epicurean* he says:

> That almost morbid religious idealism, and his healthful ove of the country, were both alike developed by the circumstances of a journey, which happened about this time, when Marius was taken to a certain temple of Aesculapius, among the hills of Etruria, as was then usual in such cases, for the cure of some boyish sickness. The religion of Aesculapius, though borrowed from Greece, had been naturalized in Rome in the old republican times; but had reached under the Antonines the height of its popularity throughout the Roman world. That was an age of valetudinarians, in many instances of imaginary ones; but below its various crazes concerning health and disease, largely multiplied a few years after the time of which I am speaking by the miseries of a great pestilence, lay a valuable, because partly practicable, belief that all the maladies of the soul might be reached through the subtle gateways of the body.
>
> *Salus*, salvation, for the Romans, had come to mean bodily sanity. The religion of the god of bodily health, *Salvator*, as they called him absolutely, had a chance just then of becoming the one religion; that mild and philanthropic son of Apollo surviving, or absorbing, all other pagan godhead. The apparatus of the medical art, the salutary mineral or herb, diet or abstinence, and all the varieties of the bath, came to have a kind of sacramental character, so deep was the feeling, in more serious minds, of a moral or spiritual profit in physical health, beyond the obvious bodily advantages one had of it; the body becoming truly, in that case, but a quiet handmaid of the soul. The priesthood or "family" of Aesculapius, a vast college, believed to be in possession of certain precious medical secrets came nearest, perhaps, of all the institutions of the pagan world, to the Christian priesthood; the temples of the god, rich in some instances with the accumulated thank-offerings of centuries of a tasteful devotion, being really also a kind of hospital for the sick, administered in a full conviction of the religiousness, the refined and sacred happiness, of a life spent in the relieving of pain.
>
> Elements of a really experimental and progressive knowledge there were doubtless amid this devout enthusiasm, bent so faithfully on the reception of health as a direct gift from God; but for the most part his care was held to take effect through a machinery easily capable of misuse for purposes of religious fraud. Through dreams, above all, inspired by Aesculapius himself, information as to the cause and cure of a malady was supposed to come to the sufferer, in a belief based on the truth that dreams do sometimes, for those who watch them carefully, give many hints concerning the conditions of the body—those latent weak points at which disease or death may most easily break into it. In the time of Marcus Aurelius these medical dreams had become more than ever a fashionable caprice. Aristeides, the "Orator," a man of undoubted intellectual power, has devoted six disclosures to their interpretation: the really scientific Galen has recorded how beneficently they had intervened in his own case, at certain turning-points of life; and a belief in them was one of the frailties of the wise emperor himself. Partly for the sake of these dreams, living ministers of the god, more likely to come to one in his actual dwelling-place than elsewhere, it was almost a necessity that the patient should sleep one or more nights within the precincts of a temple consecrated to his service, during which time he must observe certain rules prescribed by the priests.
>
> For this purpose, after devoutly saluting the *Lares* as was customary before starting on a journey, Marius set forth one summer morning on his way to the famous temple which lay among the hills beyond the valley of the Arnus. It was his greatest adventure hitherto; and he had much pleasure in all its details, in spite of his feverishness. Starting early, under the guidance of an old serving-man, who drove the mules, with his wife, who took all that was needful for their refreshment on the way and for the offering at the shrine, they went, under the genial heat, halting now and then to pluck certain flowers seen for the first time on these high places, upwards, through a long day of sunshine, while cliffs and woods sank gradually below their path. The evening came as they passed along a steep white road with many windings among the pines, and it was night when they reached the temple, the lights of which shone out upon them, pausing before the gates of the sacred enclosure, while Marius became alive to a singular purity in the air. A rippling of water about the place was the only thing audible, as they waited till two priestly figures, speaking Greek to one another, admitted them into a large, white-walled and clearly lighted guest-chamber, in which, while he partook of a simple but wholesomely prepared supper, Marius still seemed to feel pleasantly the height they had attained to among the hills.
>
> The agreeable sense of all this was spoiled by one thing only—his old fear of serpents; for it was under the form of a serpent that Aesculapius had come to Rome, and the last definite thought of his weary head before he fell asleep had been a dread either that the god might appear, as he was said sometimes to do, under this hideous aspect, or perhaps one of those great sallow-hued snakes themselves, kept in the sacred place, as he had also heard was usual.
>
> And after an hour's feverish dreaming he awoke—with a cry, it would seem, for someone had entered the room bearing a light. The footsteps of the youthful figure which approached and sat by his bedside were certainly real. Ever afterwards, when the thought arose in his mind of some unhoped-for but entire relief from distress, like blue sky in a storm at sea, would come back the memory of that gracious countenance which, amid all the kindness of its gaze, had yet a certain air of predominance over him, so that he seemed now for the first time to have found the master of his spirit. It would have been sweet to be the servant of him who now sat beside him speaking.

[1] Mary Hamilton, op. cit.

He caught a lesson from what was then said, still somewhat beyond his years, a lesson in the skilled cultivation of life, of experience, of opportunity, which seemed to be the aim of the young priest's recommendations. The sum of them, through various forgotten intervals of argument, as might really have happened in a dream, was the precept, repeated many times under slightly varied aspects, of a diligent promotion of the capacity of the eye, inasmuch as in the eye would lie for him the determining influence of life; he was of the number of those who, in the words of a poet who came long after, must be "made perfect by the love of visible beauty." The discourse was conceived from the point of view of a theory Marius found afterwards in Plato's *Phaedrus*, which supposes men's spirits susceptible to certain influences, diffused, after the manner of streams or currents, by fair things or persons visibly present—green fields, for instance, or children's faces—into the air around them, acting, in the case of some peculier natures, like potent material essences, and conforming the seer to themselves as with some cunning physical necessity. This theory, in itself so fantastic, had however determined in a range of methodical suggestions, altogether quaint here and there from their circumstantial minuteness. And throughout, the possibility of some vision, as of a new city coming down "like a bride out of heaven," a vision still indeed, it might seem, a long way off, but to be granted perhaps one day to the eyes thus trained, was presented as the motive of this laboriously practical direction.

"If thou wouldst have all about thee like the colours of some fresh picture in a clear light," so the discourse recommenced after a pause, "be temperate in thy religious notions, in love, in wine, in all things, and of a peaceful heart with thy fellows." To keep the eye clear by a sort of exquisite personal alacrity and cleanliness, extending even to his dwelling-place; to discriminate ever more and more fastidiously, select form and colour in things from what was less select; to meditate much on beautiful visible objects, on objects, more especially, connected with the period of youth—on children at play in the morning, the trees in early spring, on young animals, on the fashions and amusements of young men; to keep ever by him if it were but a single choice flower, a graceful animal or seashell, as a token and representative of the whole kingdom of such things; to avoid jealously, in his way through the world, everything repugnant to sight; and, should any circumstance tempt him to a general converse in the range of such objects, to disentangle himself from that circumstance at any cost of place, money, or opportunity. Such were in brief outline the duties recognized, the rights demanded, in this new formula of life. And it was delivered with conviction; as if the speaker verily saw into the recesses of the mental and physical being of the listener, while his own expression of perfect temperance had in it a fascinating power—the merely negative element of purity, the mere freedom from taint or flaw, in exercise as a positive influence. Long afterwards, when Marius read the *Charmides*—that other dialogue of Plato, into which he seems to have expressed the very genius of old Greek temperance—the image of this speaker came back vividly before him, to take the chief part in the conversation.

It was as a weighty sanction of such temperance, in almost visible symbolism (an outward imagery identifying itself with unseen moralities), that the memory of that night's double experience, the dream of the great sallow snake and the utterance of the young priest, always returned to him, and the contrast therein involved made him revolt with unfaltering instinct from the bare thought of an excess in sleep, or diet, or even in matters of taste, still more from any excess of a coarser kind.

When he awoke again, still in the exceeding freshness he had felt on his arrival, and now in full sunlight, it was as if his sickness had really departed with the terror of the night; a confusion had passed from the brain, a painful dryness from his hands. Simply to be alive and there was a delight; and as he bathed in the fresh water set ready for his use, the air of the room about him seemed like pure gold, the very shadows rich with colour. Summoned, at length, by one of the white-robed brethren, he went out to walk in the temple garden. At a distance, on either side, his guide pointed out to him the *Houses of Birth and Death*, erected for the reception respectively of women about to become mothers and of persons about to die; neither of those incidents being allowed to defile, as was thought, the actual precincts of the shrine. His visitor of the previous night he saw nowhere again. But among the official ministers of the place there was one, already marked as of great celebrity, whom Marius saw often in later days at Rome, the physician Galen, now about 30 years old. He was standing, the hood partly drawn over his face, beside the holy well, as Marius and his guide approached it.

This famous well or conduit, primary cause of the temple and its surrounding institutions, was supplied by the water of a spring flowing directly out of the rocky foundations of the shrine. From the rim of its basin rose a circle of trim columns to support a cupola of singular lightness and grace, itself full of reflected light from the rippling surface, through which might be traced the wavy figure-work of the marble lining below as the stream of water rushed in. Legend told of a visit of Aesculapius to this place, earlier and happier than his first coming to Rome; an inscription around the cupola recorded it in letters of gold. "Being come unto this place the son of God loved it exceedingly":—*Huc profectus filius Dei maxime amavit hunc locum*;—and it was then that that most intimately human of the gods had given men the well, with all its salutary properties. The element itself when received into the mouth, in consequence of its entire freedom from adhering organic matter, was more like a draught of wonderfully pure air than water; and after tasting, Marius was told many mysterious circumstances concerning it, by one and another of the bystanders: he who drank often thereof might well think he had tasted of the Homeric *lotus*, so great became his desire to remain always on that spot; carried to other places, it was almost indefinitely conservative of its fine qualities; nay! a few drops of it would amend other water; and it flowed not only with unvarying abundance, but with a volume so oddly rhythmical that the well stood always full to the brim, whatever quantity might be drawn from it, seeming to answer with strange alacrity of service to human needs, like a true creature and pupil of the philanthropic god. Certainly the little crowd around seemed to find singular refreshment in gazing on it. The whole place appeared sensibly influenced by the amiable and healthful spirit of the thing. All the objects of the country were there at their freshest. In the great park-like enclosure for the maintenance of the sacred animals offered by the convalescent, grass and trees were allowed to grow with a kind of graceful wildness; otherwise, all was wonderfully nice. And that freshness seemed to have something moral in its influence, as if it acted upon the body and the merely bodily powers of apprehension, through the intelligence; and to the end of his visit Marius saw no more serpents.

A lad was just then drawing water for ritual uses, and Marius followed him as he returned from the well, more and more impressed by the religiousness of all he saw on his way through a long cloister or corridor, the walls wellnigh hidden under votive inscriptions recording favours from the son of Apollo, and with a distant fragrance of incense in the air, explained when he turned aside through an open doorway into the temple itself. His heart bounded as the refined and dainty magnificence of the place came upon him suddenly, in the flood of early sunshine, with the ceremonial lights burning here and there, and withal a singular expression of sacred order, a surprising cleanliness and simplicity. Certain priests, men whose countenances bore a deep impression of cultivated mind, each with his little group of assistants, were gliding round silently to perform their morning salutation to the god, raising the closed thumb and finger of the right hand with a kiss in the air, as they came and went on their sacred business, bearing their frankincense and lustral water. Around the walls, at such a level that the worshippers might read, as in a book, the story of the god and his sons, the brotherhood of the Asclepiadae, ran a series of imageries, in low relief, their delicate light and shade being heightened here and there with gold. Fullest of inspired and sacred expression, as if in this place the chisel of the artist had indeed dealt not with marble but with the very breath of feeling and thought, was the scene in which the earliest generation of the sons of Aesculapius were transformed into healing dreams; for "grown now too glorious to abide longer among men, by the aid of their sire they put away their mortal bodies, and came into another country, yet not indeed into Elysium nor into the Islands of the Blest. But being made like to the immortal gods, they began to pass about through the world, changed thus far from their first form that they appear eternally young, as many persons have seen them in many places—ministers and heralds of their father, passing to and fro over the earth, like gliding stars. Which thing is, indeed, the most wonderful concerning them!" And in this scene, as throughout the series, with all its crowded personages, Marius noted on the carved faces the same peculiar union of unction, almost of hilarity, with a certain self-possession and reserve, which was conspicuous in the living ministrants around him.

In the central space, upon a pillar or pedestal, hung, *ex voto*, with the richest personal ornaments, stood the image of Aesculapius himself, surrounded by choice flowering plants. It presented the type, still with something of the severity of the earlier art of Greece about it, not of an aged and crafty physician, but of a youth, earnest and strong of aspect, carrying an *ampulla* or bottle in one hand, and in the other a traveller's staff, a pilgrim among his pilgrim worshippers; and one of the ministers explained to Marius this pilgrim guise. One chief source of the master's knowledge of healing had been observation of the remedies resorted to by animals labouring under disease or pain—what leaf or berry the lizard or dormouse lay upon its wounded fellow; to which purpose for long years he had led the life of a wanderer, in wild places. The boy took his place as the last comer, a little way behind the group of worshippers who stood in front of the image. There, with uplifted face, the palms of his two hands raised and open before him, and taught by the priest (Aristeides has recorded it at the end of his Asclepiadae), to the Inspired Dreams:

"O ye children of Apollo! who in time past have stilled the waves of sorrow for many people, lighting up a lamp of safety before those who travel by sea and land, be pleased, in your great condescension, though ye be equal in glory with your elder brethren the Dioscuri, and your lot in immortal youth be as theirs, to accept this prayer, which in sleep and vision ye have inspired. Order it a right, I pray you, according to your loving-kindness to men. Preserve me from sickness; and endue my body with such a measure of health as may suffice it for the obeying of the spirit, that I may pass my days unhindered and in quietness."

On the last morning of his visit Marius entered the shrine again, and just before his departure the priest who had been his special director during his stay at the place, lifting a cunningly-contrived panel, which formed the back of one of the carved seats, bade him look through. What he saw was like the vision of a new world, by the opening of some unsuspected window in a familiar dwelling place. He looked out upon a long-

drawn valley of singularly cheerful aspect, hidden, by the peculiar conformation of the locality, from all points of observation but this. In a green meadow at the foot of the steep olive-clad rocks below, the novices were taking their exercise. The softly-sloping sides of the vale lay alike in full sunlight, and its distant opening was closed by a beautifully-formed mountain, from which the last wreaths of morning mist were rising under the heat. It might have seemed the very presentment of a land of hope, its hollows brimful of a shadow of blue flowers; and lo! on the one level space of the horizon, in a long dark line, were towers and a dome: and that was Pisa, or Rome, was it? asked Marius, ready to believe the utmost, in his excitement.

All this served, as he understood afterwards in retrospect, at once to strengthen and to purify a certain vein of character in him. Developing the ideal, pre-existent there, of a religious beauty, associated for the future with the exquisite splendour of the temple of Aesculapius, as it dawned upon him on that morning of his first visit—it developed that ideal in connexion with a vivid sense of the value of mental and bodily sanity. And this recognition of the beauty, even for the aesthetic sense, of mere bodily health, now acquired, operated afterwards as an influence morally salutary, counteracting the less desirable or hazardous tendencies of some phases of thought, through which he was to pass.

Christianity and the Ancient Gods.

The last refuge of paganism was in the shrines of healing. The old gods were gradually supplanted by Christian saints. Temples were replaced by churches, where Christ was worshipped as the Healer, who did His beneficent work through the agency of His saints. Districts had their special patrons, and their shrines vied with each other in popularity. Incubation continued, and can be traced throughout Europe, Asia Minor, and Egypt. The method of incubation remained much the same as in the pagan temples. The patient had first to go through a course of vigils, prayer, and fasting. This preliminary spiritual purification was gone through at the tomb or before the image of a saint. In this way the patient was brought to a state of mind and body most suitable for the operation of hypnotism and self-suggestion. The patient was sometimes cured in a vision; either an operation was performed by the saint, or the disease was cured by the laying on of a healing hand. In other cases the saint appeared in a dream and gave directions for a cure, prescribing a certain course of treatment. Sometimes cure was wrought instantaneously, as at Lourdes, by the mere presence of the patient in the holy place. There is a striking parallel to the surgical cures attributed to Asklepios in the case of the German Emperor Henry II, of whom it is told that in 1041, being in sore suffering from stone in the bladder which the doctors could not relieve, he betook himself to the famous monastery of Monte Cassino. There he prayed fervently and St. Benedict appeared to him in a dream, and with a surgeon's knife (*ferro medicinali*) cut into the bladder—apparently by the suprapubic route—extracted the stone, placed it in the King's hand, and forthwith healed the wound. In several of the cures recorded at Epidaurus it is mentioned that the stone, spearhead, or other body removed was found in the patient's hand when he awoke. Henry told the story to Benedict VIII, who thereupon crowned him Emperor. The Pope himself gives a somewhat different version in a letter, in which he says that Henry had been troubled with doubts whether St. Benedict was actually buried at Monte Cassino. "Not being fully asleep from pain by which he was grievously afflicted, nor yet fully awake, the most Blessed Father Benedict appeared to him, and asked where his pain was. When he had fully explained it, the most blessed Benedict said, 'I know thou hast hitherto doubted whether I rest here, but this shall be a sign to thee that my body and that of my sister (St. Scholastica) are in this place. When thou arisest this day thou shalt pass three large stones *in egestione urinae tuae*, and thenceforth shalt be free from pain.' In the morning the monarch told the story to the brethren, showed the three stones of which he had got rid."[1]

The Emperor Henry operated on by St. Benedict.
A Sculpture at Bamberg (about 1510). From Eugen Holländer's *Die Karikature und Satire in der Medizin*, Stuttgart, 1905.

This shows the legend in the making. Even in this form the story has a counterpart, though in a less edifying form, on the stelae at Epidaurus, where it is recorded that a man who had stone in the bladder dreamed that he was lying with a boy. He passed the stone and went his way holding it in his hand.

The general character of the diseases cured at the Christian shrines is the same as that given in the pagan records. The accounts are as meagre as those of the "testimonies" of Christian Science and other modern methods of spiritual healing, but the prominence of lameness, blindness, and paralysis is striking. A special feature of Christian churches was the cure of lunacy and other nervous diseases, among which various forms of epilepsy are conspicuous.

The casting out of devils was a common subject with painters employed to decorate churches under the patronage of special saints; how closely some of the greatest Italian artists followed nature in this matter is well explained by Dr. Paul Riches in his copiously illustrated work, *L'Art et la médecine*. The demoniacs lived in the churches, where the rite of exorcism was performed on them every day. Sufferers from various diseases also took up their abode in a church, it might be for months or even years. Such a

[1] E. T. Withington, *Medical History from the Earliest Times*. London. MDCCCIV.

system of resident patients implies the maintenance of a large establishment. Hospices and baths adjoining the churches are frequently mentioned in the narratives, and great crowds came to invoke the saints, filling the hospices and sacred buildings.

The healing saints were mostly general practitioners; but many were specialists, as St. Lazarus for leprosy, St. Roch for plague, St. Raynald for diseases of the eye and skin, St. Dodon for rheumatism, and so forth. The photograph (which we owe to the kindness of Dr. George Pernet) reproduced below gives some other names; the list might be extended indefinitely. Sometimes the attribution had its origin, as in the case of St. Lazarus, in the fact that the saint had suffered from the disease which he cured; sometimes, as in that of St. Roch, from his having while alive shown particular zeal in tending sufferers, often from some accidental circumstance in a resemblance between his name and the disease or the part affected.

Miracles were regarded as a test of the influence with the Almighty possessed by the saints, and national and regional jealousies naturally led to the growth of legends. An attempt to authenticate miracles has for some

THE SIX HEALING SAINTS OF NOTRE DAME DU HAUT (CÔTES DU NORD).

St. Mamert cures abdominal ailments; St. Livertin, headache; St. Houarniauce, who is holding a wolf on leash, cures fear; St. Meen cures madness; St. Hubert, the bite of mad dogs; St. Lubin comforts all who are afflicted.

centuries been made in the act of canonization, where the *advocatus diaboli* plays the part of the historical critic. Notwithstanding this the Roman Breviary, though partly expurgated by Leo XIII, still contains a number of stories which are stones of stumbling to the faithful.

Some saints are credited with miracles performed in infancy which irresistibly recall the statement referred to by Yorick that the great Lipsius composed a work the day he was born. "They should have wiped it up," said My Uncle Toby, "and said no more about it."

VOTIVE OFFERINGS.

In the old shrines of healing, as in the new, the votive offering plays a prominent part. The walls of the Greek Asklepieia were adorned with representations of arms, legs, necks, breasts, and other parts of the body which had been healed. These were made of precious metal or such baser material as the grateful patients could afford. These votive offerings, doubtless, resembled the *donaria* found in the old Roman temples of Aesculapius, but were probably of more artistic workmanship. A collection of these *donaria* was described by Dr. Louis Sambon in the BRITISH MEDICAL JOURNAL of July 20th and 27th, 1895, and some specimens were reproduced in the JOURNAL of June 17th, 1899. The *donaria* consisted for the most part of bronze statuettes or representations in marble or terra-cotta of the parts of the body which had been the seat of disease. They were thrown into the water of the sacred spring, or hung about the walls of the temple or round the statue of the god. When they had accumulated to an inconvenient extent, they were put away in small caves or wells or buried in the ground, from which they are now from time to time recovered. Terra-cotta images are naturally the most numerous; and the variety of objects represented is very great. They are mostly of very rude workmanship, but many of them are interesting as showing the notions of the anatomy of the human form which were current among the Etruscans and old Romans. The terra-cotta figures were painted in various colours, generally red and blue. Marble *donaria* are uncommon; bronze figures are fairly numerous.

Another form of the *ex-voto* was a tablet of wood or terra-cotta on which were paintings representing miraculous cures. Such tablets may be seen at the present day in churches in Italy, Spain, and other Southern countries; and the altars are often covered with *donaria* in wax and silver. Rouse in his work on *Greek Votive Offerings*[1] classifies the offerings in the Greek temples which commemorate a deliverance from sickness under the following heads: (1) The Image of the Deliverer; (2) the Image of the Person delivered; (3) Representative of the Act or Process; (4) Miscellaneous. He says that the Epidaurian cures would have been rejected by Plato or Sophocles as by any educated man of to-day; such as these and most of the richer citizens went to the doctors. But the ordinary Greek was simple and tried the faith cure, which was at once cheaper and more in accordance with tradition.

"If," he says, "we set aside the temple officials who naturally would support the establishment, most of the dedicators' names lack the demotic adjective; which may imply that they were foreigners, or humble tradesmen, not citizens of Athens. Or the temple might be the last resort of those who could get no relief from the physicians."

INCUBATION IN MODERN GREECE.

A good idea of the rites practised in the Asklepieia of ancient Greece may be got from observances of a kindred character which are still to be witnessed in some of the more remote islands of the Greek archipelago. Miss Jane Harrison, who is a recognized authority in Greek archaeo-

[1] *Greek Votive Offerings. An Essay in the History of Greek Religion.* Cambridge, 1902.

logy, was present at a religious function in the island of Tenos, which may be taken as fairly representative of the rites of healing at Epidaurus and the other shrines of Asklepios, though shorn of the beauty of art and the pomp of a richly endowed shrine. It is, she says, the eve of the feast, and pilgrims have been arriving all day, and continue to do so far into the night. The whole place is full of them. They present a weird spectacle: many are lame, not a few blind or paralytic, most of them exceedingly dirty. The houses are very full, and sleeping accommodation is nowhere to be had. Many make a night of it, and the cafés do a roaring trade. Dancing begins in the streets, and whole night is one long unrest. Meanwhile the Church plays its part. Service has been held in the afternoon, and vast colonnades have been prepared for the reception of patients. The more fortunate have secured places in these, and amidst the lurid flame of quickly-prepared fires, the night is passed in cooking food and attending to the wants and cries of the children. Round the sacred well the crowd is thickest. The ceremony begins with a procession of priests, which threads its way among the worshippers, whose object is to be touched or actually walked over by the bearer of the Eikon, or sacred image. Next morning printed lists of cures accomplished during the night are published by the priests. In the church itself may be seen numbers of votive offerings, in the form of limbs or other parts of the body, which were the seat of the disease, placed there in testimony of cures wrought on former suppliants. Here, too, the parallel is exact, for vast numbers of such *ex-votos*, many of them made of gold, have been excavated from the ruins of the Asklepieia.

The church at Tenos is comparatively recent, having been erected in 1821 at the outbreak of the War of Independence. To-day it is the most famous of the Greek shrines of healing, and may perhaps be regarded as having inherited the virtues of the temple of Apollo at Delos, which is in its near neighbourhood. Miss Mary Hamilton[1] gives accounts of similar pilgrimages which she has had the opportunity of seeing in many parts of the islands and mainland of Greece.

Healing Wells.

Here it may not be out of place to say something about the wells which are a feature in all shrines of healing, ancient and modern. The belief in the relation of wells with the healing of disease is a very old one. The Pool of Bethesda may perhaps be referred to in connexion with this belief. In the old temples bathing was prescribed not only for purification before the influence of the god was invoked, but as a means of treatment.

In 1872 among the ruins of the so-called baths of Heliogabalus there were discovered the remains of a small sacred edifice of the fifth century generally believed to have been the church of Saint Cesario in Palatio. From this building a steep staircase leads directly down to a well whose construction is said to belong to the republican era. It is supposed that the water of this well was credited with certain healing qualities and played its part in certain rites and ceremonies practised in the Middle Ages. Similar instances of such wells in Christian churches are not wanting. The site of a famous temple of Aesculapius, on the island of the Tiber, is now occupied by the church of San Bartolomeo. Under the altar of this church, built about the ninth century on the ruins of the temple, is an ancient well, which was undoubtedly connected with the rites of incubation. Grateful patients used to throw coins into these wells. Justinian built, out of the stone which remained over from St. Sophia, the church of "St. Mary of the Well" at Balukli, near Constantinople. This well, discovered at the time of Leo the Great, was already celebrated for the miraculous cures effected by its waters. Even to-day holy springs are to be found in Cyprus, Crete, and many other places in Greece and throughout Europe.

Wells were especially credited with therapeutic virtues in the diseases of children. Mr. R. C. Hope, in his *Legendary Lore of Old England*, enumerates 139 such wells; and Dr. Dan McKenzie has discussed the whole subject in a paper published in *Folk-Lore*, an abstract of which appeared in the JOURNAL of January 11th, 1908. Some thirty wells in Cornwall are said by Mr. and Mrs. Quiller Couch to be curative of sick children. In some foreign countries, as in Slavonia, Servia, and Syria, diseased children are often taken to wells for treatment.

[1] Op. cit.

Many children's wells are found in Scotland. In the Scottish Highlands there were in former times many springs famous for their healing properties. One of the most noted of these places was Saint Fergan's Well, in the Hill of Knockfergan, near Kirkmichael, in the Banffshire Highlands. Even in the middle of the eighteenth century this well was the resort of pilgrims in search of health. Like all the other springs in the Highlands, it had a guardian spirit which took the strange form of a fly. According to custom, all who drank the water of this well were expected to leave an offering to the spirit, which might be in the form of money, pins, or bits of cloth. The author of a book entitled, *Lectures on the Mountains; of the Highlands and Highlanders as They Were and as They Are*, published in London in 1860, remembers having seen some of these *ex-votos*.[2] According to Miss Mary Hamilton,[3] the hanging of rags on a tree or bush as a token of a disease left behind, or a sign of the suppliant's desire for a cure, is a widespread custom in Greece and in Asia Minor at the present day. The origin of the custom is the belief that an evil thing can be transferred from oneself to an inanimate object by the agency of a rag. Speyside had numerous miraculous springs. Over a century ago the "chappel wall" at St. Mary's Orton was renowned for the cure of whooping-cough and diseases of the eyes and joints. Two miles further down the river the wells at Alt-Hash were also the resort of children suffering from whooping-cough, who were brought to drink the waters in the month of May. At these wells, too, votive offerings of pins, coins, rags, and even little "mutches," or caps, were left as tokens of gratitude.

We have the testimony of the late Sir Arthur Mitchell[4] to the fact that the adoration of wells continues in Scotland largely at the present day. It may, he says, be encountered in all parts of Scotland from John o' Groats to the Mull of Galloway. The well on Innis Maree, which the Dingwall Presbytery condemned at a meeting in 1656, is still an object of adoration. When Sir Arthur Mitchell visited it, some fifteen years before the date of his book, he found numerous offerings fastened to the tree which stands beside it. The bush above Craeguck Well, in the parish of Aboch, was covered with rags when he was there, and he saw at least a dozen wells in Scotland which had not ceased to be worshipped. He goes on to say that, whereas formerly crowds used to go to these wells on the first of May and the pilgrimage ended as a frolic, nowadays the visitors are comparatively few and those who go are generally in earnest.

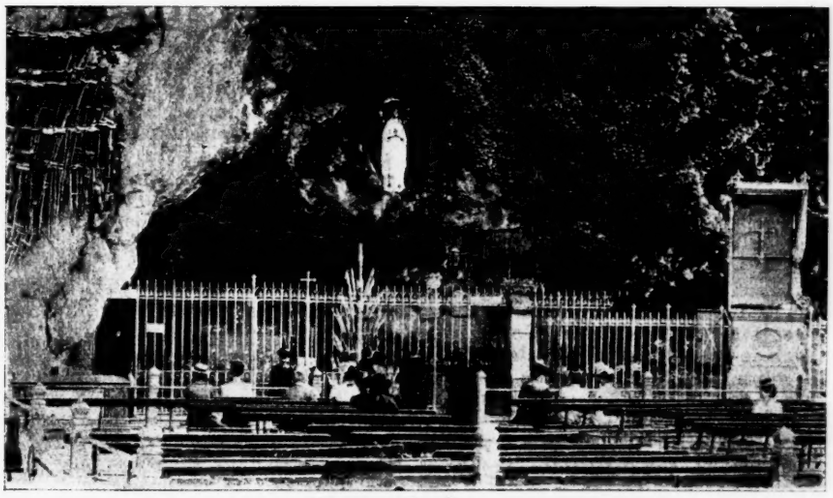
> They have a serious object, which they desire to attain. That object is usually the restoration to health of some poor little child—some "back-gane bairn." Indeed, the cure of sick children is a special virtue of many of these wells. Anxious mothers make long journeys to some well of fame, and early in the morning of the 1st of May bathe the little invalid in its waters, then drop an offering into them by the hands of the child—usually a pebble, but sometimes a coin—and attach a bit of the child's dress to a bush or tree growing by the side of the well. The rags we see fastened to such bushes have often manifestly been torn from the dresses of young children. Part of a bib or little pinafore tells the sad story of a sorrowing mother and a suffering child, and makes the heart grieve that nothing better than a visit to one of these wells had been found to relieve the sorrow and remove the suffering. One feature of the visits paid to these wells in a spirit of faith and earnestness, as visits like those I speak of are sure to be, is that they are kept more or less secret. It is well enough understood that the business is not a Christian one, and that the engaging in it is not a thing which it would be easy to justify. There is a consciousness that it has not been gone about as an empty, meaningless ceremony, but that it has involved an acknowledgement of a supernatural power controlling human affairs, and influenced by certain rites and offerings—a power different from that which is acknowledged by Christians. Hence it happens that there is a difficulty in getting people to confess to these visits, and of course a greater difficulty still in getting them to speak freely and frankly about the feelings and beliefs that led to them.
>
> Some of these wells have the names of Christian saints attached to them, but I never knew a case in which there was any prayer or appeal to the saint. Many of these wells were objects of adoration before the Christianizing of the country. The early missionaries, by taking them over as levers of regeneration, believed themselves to be doing wisely in trying to give a new direction to the respect paid to them. Their success, however, does not seem to have been complete and lasting.

[2] BRITISH MEDICAL JOURNAL, November 13th, 1909, p. 1421.
[3] Op. cit.
[4] *The Past and the Present: What is Civilization?* Edinburgh, 80

Speaking of other superstitious practices still common in Scotland and unquestionably of pagan origin, Mitchell says it would be a great mistake to suppose that the persons who practise these rites with just belief in their efficacy are the grossly ignorant, and a still greater mistake to suppose that they are the irreligious. "On the contrary, they are often church-attending, sacrament-observing, and tolerably well-educated people—people, too, who necessarily participate in all the advantages of the advanced civilization of their country."

Of healing wells in Wales the most celebrated is that of St. Winefride at Holywell, the curative virtues of which were proclaimed some years ago by that prophet of the marvellous, Mr. W. T. Stead.

In France the cult of the well dates back to a time before the conquest of Gaul by the Romans. The district of Morvan is particularly rich in miraculous springs, and it is only within recent years that the number of sufferers resorting to them has begun to diminish. Most of these wells are under the protection of a saint, but the belief in their curative virtues is much older than Christianity. It is, indeed, one of the primitive forms of naturalism which preceded philosophic religions. It existed in India, Egypt, Persia, Asia, whence it passed to Germany, Scandinavia, Gaul, and Britain, before or with Druidism. In Gaul the priests of Belen practised medicine, their chief healing agent being the worship of water, trees and stones. After the conquest of Gaul by the Romans, the latter, pursuing their usual policy, adopted the native gods. After the Romans the Christian bishops had to fight the popular superstition. Notwithstanding the fulminations of councils (Tours, 567; Nantes, 658; besides two ordinances of Charlemagne, 789 and 794), Christianity could do nothing more than transform, without being able to destroy, the cult of wells. A saint was given to each of them, the old idol being broken, or perhaps made to serve as the saint, and placed in the chapel built in the neighbourhood of the well. Thus at Certenue Our Lady replaced the White Lady, who was formerly the tutelary deity of the well. M. Lex, who has made a special study of the wells in the department of Saône-et-Loire, has found that among 76 springs 30 cured fevers, 14 every kind of disease, 13 affections of visions, 4 barrenness in women, 5 pains, 2 headaches, 1 neuralgia, 1 wounds, 3 glands in the neck, 1 cancer, 3 diseases of the skin, 1 caries of the bones, 3 pains in the stomach, 1 indigestion, 1 catarrh, 1 goitre, 2 all the diseases of children, 3 rickets, 2 wasting, 1 convulsions. Other wells were credited with the quality of bringing milk to the breasts of young mothers; others, again, of making delivery easy. The offerings brought by pilgrims consisted in eggs, cheese, and some small money. It was believed that only the poor could pick up these offerings; a well-to-do person who stole them got at the same time the disease of which the pilgrim had been cured.



LOURDES: THE GROTTO.

LOURDES.

Lourdes may be looked upon as the type of the modern healing shrine, as Epidaurus has been taken as that of the ancient world. At the present time it is the most famous place of pilgrimage in existence. It is a curious fact that shrines of healing have their periods of splendour; they suffer eclipse from time to time as newer places of devotion come into fashion, and sooner or later they almost inevitably fall into decay and oblivion. This happened over and over again in antiquity, and it happens now. A few years before Lourdes became known, La Salette, which is among the mountains in the Department of Isère, not far from Grenoble, was in great repute, though it never reached the height of popularity enjoyed by Lourdes, the rising glory of which threw it into the shade. It has now fallen on evil days, though it is not altogether deserted of visitors.

Lourdes lies in a beautiful valley on both sides of the Gave in the south-west of the department of the Hautes-Pyrénées, at the mouth of the gorge which, as it divides, leads to the thermal springs of Cauterets, Saint Sauveur, and Barèges. There are two distinct towns—the old, or "grey town," and the new, or "white town." On the right bank of the river on a steep rock stands, as if in watch over the old town, the ancient citadel of Lourdes, on which have floated successively the banners of Romans, Saracens, and English. It has been time and again attacked by great feudal lords in the Middle Ages, and was the scene of many a bloody fight during the wars of religion. Further to the west is the white town, made up of churches, monasteries, shops where rosaries, medals, and other objects of piety are sold, and of hotels and lodging-houses for pilgrims. The story of Lourdes has been told so often that it need only be recalled that it owes its origin to an ignorant young girl, Bernadette Soubirous, daughter of a miller of Lourdes, who in 1858 is said to have seen eighteen times an apparition of the Blessed Virgin in the grotto of Massabieille. The apparition said

LOURDES: THE BASILICA AND ROSARY CHURCH.

to her, "I am the Immaculate Conception." These facts, after a long inquiry, were declared by ecclesiastical authority to be authentic and miraculous, and a feast with a special office was authorized for the anniversary of the first apparition (February 11th). The number of pilgrims has gradually increased, and now every year, in the month of August, the Great Pilgrimage takes place and requires a special service of trains. Churches have sprung up and their walls and the grotto are covered with *ex votos*. A statue in white marble by Fabisch, of Lyons, stands on the spot where the first vision was seen. To the left of the grotto is the miraculous spring which discharges 85 litres of water a minute. It was unknown before the apparition, and some engineering skill has been needed to keep up the supply. It is situated in a building where there is this inscription: "Allez boire à la fontaine et vous y laver. Février 1858." A part of the water, which comes out of several pipes, is for the use of the pilgrims. The rest supplies the piscinae where patients bathe in the hope of a cure. The Bishop of Tarbes at present is the chief ecclesiastical authority.

The whole country about Lourdes is rich in shrines. J. K. Huysmans, in *Les foules de Lourdes* (Paris, 1905), says Lourdes is like a living star surrounded by nine satellites, dead or dying. These are Notre Dame de Héas, Notre Dame de Piétat at Barbazan, Notre Dame de Piétat at Saint-Savin, Notre Dame de Poueylahün, Notre Dame de Bourisp, Notre Dame de Nestès, Notre Dame de Médoux, Notre Dame de Bétharram, and Notre Dame de Garaison. All these shrines are very old. The legend of the origin of several of these is similar to that of Lourdes. Thus, at Notre Dame de Médoux the Blessed Virgin appeared to a young shepherdess named Liloye; Notre Dame de Bétharram was discovered by some young shepherds who found a luminous statue of Our Lady in a bush; the shrine fell into decay, and was restored by Louis XIII. On the eve of the Assumption, 1622, the spring, which had run dry years before, began to flow again. But now the patroness of the well has left it and gone on to Lourdes. There is an ancient church at Bétharram, destroyed in the wars of religion and rebuilt at the beginning of the seventeenth century. A calvary stands on the hill above the chapel. The caves of Bétharram are among the wonders of France, and, indeed, of Europe. The history of Notre Dame de Garaison is almost an exact anticipation of that of Lourdes; it was, in fact, the Lourdes of the sixteenth and seventeenth centuries. Of Bernadette it need only be said that she was a simple soul, very stupid, very pious, and of very unhealthy constitution. She is described by those who knew her as altogether an insignificant person, but sweet in temper and lovable. She was totally without education, and at the time of the first vision had never, it is said, heard of the Immaculate Conception. From childhood she was the victim of severe asthma, and in 1879 she died of tuberculosis of the bones in a convent at Nevers, where she worked as infirmarian. The story of her humble life—a life of suffering and resignation—is told by J. B. Estrade in *Les apparitions de Lourdes* (Tours, 1899).

We need not go into the bitter controversies which have raged round this poor girl who might have been the heroine of Flaubert's *Un coeur simple*. There seems to be no solid reason to doubt Dr. Balencie's statement that, as the incessant crowd of visitors who went to see her imposed a strain on her which she was unable to bear, he thought it best to interfere for her protection. She herself disliked the notoriety of which she was the object, and of her own will took shelter in the convent where she died. One feature of Lourdes which cannot fail to make a disagreeable impression on visitors more sympathetic than Zola, is the open and unabashed commercialism of the place. The pilgrim is exploited in every possible way, and the sale of religious objects brings vast sums of money to the town. A particularly revolting example of this is a shop in a conspicuous situation bearing the name of Bernadette's brother. Her name is used in a like manner by others of her family. To such base uses may the seer of heavenly visions come! It would be going outside our province to describe the churches and religious institutions of Lourdes. Huysmans cannot find words strong enough to condemn them from an artistic point of view, but he admitted that what we may call the management of the place is admirably fitted to arouse religious excitement to the highest pitch in believers. Even unbelievers like Zola have recognized that the processions and other religious functions, and especially the vast mass of prayers shot, in Huysmans's words, like catapults against the gates of heaven by the pilgrims, must stir the coldest and most languid to emotional fervour.

Here we are concerned with the effects of all this on the sick. Only two parts of the ritual of cure need be mentioned: the plunging of the sufferer in the sacred spring, and the benediction of the sick with the Blessed Sacrament displayed on a monstrance. The water is also drunk by those who can get near the taps, but the crowding is so great that often this is not possible. Nowhere in the world is such an amount and variety of disease seen as at Lourdes. The rotting limbs, gnawing ulcers, and deformities of all kinds gathered together, make up a hideous spectacle of misery that can never be forgotten; and the stench of the discharges is enough to upset the stomachs of the doctors and nurses most hardened to the smell of diseased humanity. But the charity that nowhere flowers more sweetly than at Lourdes enables the volunteer attendants to go through their work without sinking under their self-imposed burden. Huysmans, who gives an account of the Bureau des Constatations where "cures" are verified, was struck by the care taken to exclude all false miracles. Both Dr. Boissarie and Dr. Cox, who have charge of what may be called the clinic of miracles, are, he says, on their guard against fraud and self-deception, and rigorously set aside all cases of hysteria, epilepsy, and all forms of disease obviously due to neurotic causes. The reality of the result is tested and precautions taken to ascertain its permanence by examining the patients year after year when the opportunity is afforded till it is judged that a sufficient time has elapsed to enter it on the list of "cures." The official record of the "cures" wrought at Lourdes is contained in Dr. Boissarie's book, *Les grandes guérisons de Lourdes*.[1] The work is now ten years old, but a new edition is, we understand, about to appear. We may say of the book what Carlyle said of the Koran, that it is "crude, incondite," but it is of special value, as it gives the official medical evidence. From it we learn that the Bureau des Constatations was established about 1884. Before that time the cures were described by the clergy, who consulted the doctors of the patients, drew up the notes and reproduced the certificates at the end of each observation. At an earlier period each patient used to make his doctor verify the cure, and this was, in fact, the best way of spreading the fame of Lourdes. Then two medical men, Drs. Dozous and Balencie, came on the scene. The former was a sceptic, but on examination recognized the supernatural. He wrote a book some years ago, to which he prefixed the motto: "J'ai cru, parce que j'ai vu." The other one was a Catholic, but did not believe in the apparitions, which he described in an official report to the prefect as hallucinations. He afterwards saw reason to change his mind, and at the time of publication of Boissarie's book (1900) he had signed certificates of cure at Lourdes.

The clinic was founded by Dr. de Saint-Maclou, of Louvain. He directed the clinic from 1884 to 1891. During these seven years the average of reports drawn up in the office annually was 50, the number of doctors present being sometimes 30 to 35. In 1892 there was a sudden rise from 40 doctors to 120, from 50 reports to 100. In 1897 there were 220 doctors and more than 230 reports. This does not include many who visited Lourdes *incognito*. The 230 reports represent only two-thirds of the cures seen by Boissarie. The total number would be about 300. At first the clinic worked only during the great pilgrimages—two months. Now it works six months, from April 12th till October 15th, six hours a day, and there is often a large mixed audience. During the national pilgrimage sixty to eighty doctors sometimes follow the inquiries. Some at least of the larger pilgrimages (Dr. Boissarie says all) bring their own doctors with them. Only preliminary work is done at Lourdes; addresses, names, and certificates are taken, and the condition of the patient is noted. As the doctors come from every part of France, there is no town or province that has not sent representatives there. Two or three thousand certificates are brought each year. That would make in ten years twenty-five to thirty thousand, bearing the names of twelve

[1] Edition illustré de 140 similigravures dans le texte et de 24 gravures hors texte sur papier couché. Paris: Ancienne Maison Charles Douniol. P. Téqui, Libraire-Editeur, 29, Rue de Tournon, 29. 1900.

to fifteen thousand different doctors. All countries in the world, including England and America, send pilgrims to Lourdes. As regards the attitude of the doctors, there are some who are convinced, some who wish to examine without prejudice, some who will not listen to anything, others who are annoyed. Among the irreconcilables, says Dr. Boissarie, it is rare to find names well known to science; they are mostly doctors who have drifted into politics. The professors and others listen and observe. During the five or six years preceding the date of his book there were 30 professors of faculties, 15 in medical schools, 15 physicians to the Paris hospitals, 20 members of the Academy of Medicine, 20 doctors of the University of London, 15 professors in foreign faculties, and a certain number of senators and deputies. Then there was Zola, who put his hasty observations into the form of a novel. Naturally he "explains" everything, but he has to admit certain facts which in the present state of knowledge can only be regarded as riddles. The special point about the Lourdes miracles when they happen—which when the evidence is critically sifted is not often—is their instantaneous character. The sudden healing of a face destroyed by lupus—in one case with, in another without, scarring—facts vouched for by Boissarie and by Huysmans, who saw the patients, is altogether outside ordinary experience. But it is not, therefore, necessarily a result of supernatural intervention. The case of Peter de Rudder, said to have been cured suddenly of a compound fracture of both bones of the leg, at Oostacker, the Belgian Lourdes, in 1875, may, perhaps, be placed in another category. The wound is said to have been open eight years, the ends of the bones being a considerable distance apart. Here we do not find the evidence altogether convincing.

The sudden cure of phthisis is not so difficult a riddle. The diagnosis may be at fault, and the cure may not be so sudden as it appears to be. The healing of sinuses due to diseased bone may appear to the patient to be instantaneous, when in reality the process has taken place gradually under a scab. A case of this kind evidently puzzled Zola, who could not deny the reality of the cure, and therefore left it unexplained. It must be remembered that most of the patients whose cases are reported are poor and dirty; bandages are not often changed, and it is conceivable that the cure may be wrought by the slow forces of Nature, though the discovery of what has happened comes only when the bandages fall off in the sacred spring. Of the cure of cancer there is a number of examples; but here again comes in the question of diagnosis. The surgeon of largest experience will be the readiest to admit that this is a serious source of fallacy.

It is significant that the largest number of *ex votos* are crutches; it may safely be conjectured that the crutches represent the bulk of the cures. At all healing shrines cases of lameness and "paralysis" yield by far the largest proportion of cures.[1] There are two features of the Lourdes "cures" to which particular attention should be drawn—there is no medical treatment as in the later days of the old temples of Asklepios, and there is no secrecy. Publicity is courted. There is often, no doubt, exaggeration, and oftener still mistake. But those who have charge of the shrine seem, as far as can be judged, in perfect good faith, and to be as ready to acknowledge failures as to proclaim successes. It may be added that the miracles of Lourdes are not *de fide*, and many good Catholics keep an open mind on the subject.

Not all the "cures" are instantaneous. In some, especially in cases of bone disease, repeated visits to the shrine are required. Others are healed not at Lourdes, but it may be a considerable time after the pilgrimage. There are many relapses. In the whole enormous amount of diseased persons who seek deliverance from their sufferings at Lourdes many are eased for a time, but of definitive cures the proportion is small. The total number has been estimated at 7,000, but, according to Padre Gemelli, a medically-trained ecclesiastic who discussed the miracles not long ago with the medical professors of Pavia, this should be reduced by one-half. If we accept this figure as representing anything like the result of forty-five years of miracle working, it compares very unfavourably with the statistics of any modern hospital. Of course, it may be said that at Lourdes cases are cured which are the mere despair of medical art. But even if we admit that cures have been wrought that cannot be explained in the light of present knowledge, they are very few in number, and the evidence is doubtful.

The secret of good statistics of "miracles" lies, as in less occult provinces of the healing art, in the right selection of cases. These should be instances of purely functional disorder, or, if there be organic mischief, it should be such as is dependent on nervous disturbance. "Neurosis" may indeed in general terms be laid down as the indication for "miracle." A Roman Catholic physician, the late Dr. J. R. Gasquet, who was President of the Psychological Section at the Annual Meeting of the British Medical Association held at Dublin in 1887, who paid a visit to Lourdes in 1894, classified the cases which he saw there into two categories.[2] In one of these the symptoms were purely neurotic, and in them recovery was, he said, the rule. The other consisted of "persons in whom examination easily detected the persistence of organic disease, but whose general condition was greatly improved." In the former group most of the cases were examples of hysterical paralysis; in the latter cases of osteo-arthritis predominated—a circumstance which Dr. Gasquet says is "not without interest considering the neurotic affinities of the disease." This is just what might be expected. Of course, persons afflicted with other infirmities go to Lourdes. Dr. Gasquet admits that the great majority of the cures which he saw at Lourdes "were evidently, in one way or another, due to the influence of the mind on the body." This influence, as all medical practitioners can testify, is capable of working "miracles" as striking as those in the records of any shrine. A powerful mental emotion or shock will often cure cases of functional paralysis, hysterical contracture, and similar conditions, which are the mere despair of medicine. Gout has been literally frightened out of a man, and strong emotion has restored the sound of a voice that had been still for years. We have ourselves seen a woman who had long been voiceless cured of her aphonia by the mere introduction of the laryngoscopic mirror; and the story told by Herodotus of the King's son who "burst the bonds of his voice" when he saw his father about to be slain before his eyes is entirely credible. A large number of most interesting cases illustrating the effects which mental shock may have on the body will be found in Hack Tuke's *Illustrations of the Influence of the Mind upon the Body in Health and Disease* (London: Churchill, 1872). The analogy which these cases, in which there is no suggestion of thaumaturgic influence, present to the miracles wrought at shrines and temples, is so striking that one can hardly avoid the conclusion that the mechanism is the same in the one class of cases as in the other. But in the miraculous cures it is the patient's faith that makes him whole; and in cases where nerve power is deficient there is no more potent agent. The physician has called this powerful auxiliary to his aid in cases of what Sir John Russell Reynolds called "paralysis from idea," and others where it was likely to be useful. Charcot sent many patients to Lourdes. It is only fair to Dr. Gasquet to quote the following passage, which expresses his view as to the cases in which, the local disease remaining unaffected, the general state greatly improved:

> To say there is nothing remarkable about them, and that they are simply instances of suggestion carried out on a large scale, is merely to provoke the retort, "Why, then, do you not treat your own patients with equal success?" It must be clear to the most superficial observer that the conditions of suggestion—if suggestion there is—at Lourdes differ very considerably from those which prevail in the clinics of Nancy or Paris. There is no evidence of hypnotic manifestations among the pilgrims; and the number of cures of the various neuroses at different times are in no direct ratio to the amount of religious excitement, there being often none during the great pilgrimages and processions. Whatever suggestion there may be must come from within, and, even so, must differ notably from the more common kinds of "autosuggestion"—to use the barbarous word which has been coined for the purpose. Thus, there can be no certain anticipation of cure on the part of the patients, for all are aware that recovery is the exception, not the rule. It is a matter of every-day experience at Lourdes that many who arrive with the most confident belief that they will be healed derive no benefit

[1] At Banf, in the Rocky Mountains, a steep path leading to one of the smaller sulphur wells is, or was, railed in by a fence entirely composed of crutches.

[2] Dr. Gasquet's account of what he saw at Lourdes may be found in his volume entitled *Studies Contributed to the Dublin Review* (London, 1904).

there, while there are sufficient instances—Dr. Boissarie records a very striking one—where persons were cured who had no hope whatever. The truth appears to me to be that suggestion is potent in the cure of disease in proportion, not to its directness and imperiousness, but to its forming a part of the normal mental life of the individual. The former kind of suggestion is like a foreign body, which may compel the living tissues to yield to its impact, but cannot restore health, which must be due to the physiological reaction of the organism. For the same reason, I believe that cure by suggestion is less frequent among the puppets of the Charité and the Salpétrière than among the patients treated by the simpler process employed at Nancy, and that it is most real and complete when wrought by the ordinary moral influence of the physician. The wonders worked by this last means will be never fully known, "*carent quia vate sacro*," but they have more elements of permanence about them than those produced by formal hypnotic suggestion. I no not, however, myself think this is the whole account of the matter. I believe that contact with the supernatural, not only at Lourdes, but in every place where men call for the help of their Creator, may produce much greater effects than ordinary suggestion or auto-suggestion can accomplish. Such effects would be produced through the influence of the mind on the body; and no argument could be based on individual cases, each of which might be paralleled among instances admittedly natural. But if the environment of patients visiting Lourdes be borne in mind, it will appear very improbably that the kind and degree of suggestion existing there should produce so many complete and permanent cures, even of purely nervous ailments. Nor will this seem antecedently unlikely to theists, who will be prepared to admit that prayer has a superhuman efficacy to change and renew the moral and spiritual nature of man. Those who grant so much will hardly think it unreasonable to believe that such an action may sometimes overflow into the body, which they know to be so intimately connected with the mind.

It should be added that it is stated by various writers that, even when Lourdes fails to cure the ailing body, it comforts the soul. This is not a small thing.

CHRISTIAN SCIENCE.

The newer forms of spiritual healing have been so fully discussed in the JOURNAL during the past year or two that little need be said of them here. They present at least one note of sectarianism, in that they hate each other with the fervour characteristic of the theological temper.

Christian Science seems to present one fundamental point of difference from all other forms of spiritual healing. This is, that whereas the cures said to be wrought at Lourdes and other shrines are attributed to the direct action of Christ, exercised at the intercession of His Virgin Mother or His saints, Mrs. Eddy and her disciples claim, as far as we understand the teaching—which is not only obscure in itself, but often inconsistent—to cure disease by the same power of healing that was given to Christ. In the sacred book of the sect we read:

> Our Master healed the sick, practised Christian healing, and taught the generalities of its divine Principle to His students; but He left no definite rule for demonstrating His Principle of healing and preventing disease. This remained to be discovered through Christian Science. A pure affection takes form in goodness, but Science alone reveals its Principle and demonstrates its rules.[1]

She tells us that "when God called her to proclaim His Gospel to this age, there came also the charge to plant and water His vineyard." What she calls her "sacred discovery" was made in 1866, and since then it has become widespread in America and in this country. It does not commend itself to the Latin mind, which is nothing if not lucid and logical. Its methods and results are fully discussed by some representatives of the most advanced medical thought in the present issue of the JOURNAL, and we have nothing to add to what they say. To any one who wishes to see the whole case against Christian Science put most clearly and convincingly from the medical point of view, we cordially recommend Mr. Stephen Paget's book on the subject.[2] It is attractively written, well "documented," and informed with the true scientific spirit.

We need say only one thing more about Christian Science, which, to speak plainly, is a repulsive subject, inasmuch as it shows in a way no other form of spiritual healing does the depths of degradation to which the human mind can sink under the weight of superstition. That it cures cases of the kind that have been healed at all sorts of shrines—pagan, Christian, Buddhist, Mohammedan—from time immemorial, it would be idle to deny. That it brightens the lives of some persons who have no aim in life and have nothing to do but evoke pains and ailments by thinking of their health is also true. But none the less, its pretensions go far behind anything that is credible, except by such as accept Tertullian's paradox, *Credo quia impossible*; and, instead of courting the light as other methods do, it seems to love the darkness. We have asked over and over again for facts that would convince a trained mind, but none are forthcoming. Christian Science may, indeed, be described as faith with the least possible amount of works and the largest possible number of words. Here are fair specimens of the kind of facts which form all the evidence vouchsafed to us of its healing efficacy; they are taken from the *Christian Science Sentinel* of May 28th, 1910, p. 777:

> A short time ago I was taken sick with fever. My mother asked for Christian Science treatment for me, and I was almost instantly cured. I have been reading *Science and Health, with Key to the Scriptures*, by Mrs. Eddy, and have been benefited in business and in health ever since. I am very grateful for Christian Science, and thankful to God, whence all good comes.
> FRED. WERTH, Dallas, Tex.

> Some time ago I was attacked by stomach and bowel trouble. A Christian Science practitioner was called, and my ailment soon left and I was again able to resume my duties. I am very thankful for the good done me and others, and praise God for speaking to us through Mrs. Eddy.
> TILLIE WERTH, Dallas, Tex.

There is nothing new in Christian Science except the colossal impudence of its pretensions. Mark Twain spoke in ignorance when he said:

> The Christian Scientist has taken a force which has been lying idle in every member of the human race since time began.[3]

We have shown that it was not left to Mrs. Eddy to discover this force, and that so far from lying idle, it has been active in temples and churches, at shrines and tombs, for thousands of years. In one thing Christian Science has probably a unique record of achievement: Beyond any sect or system that we know of it has succeeded in exploiting human imbecility and turning airy nothing into solid cash.

THE EMMANUEL MOVEMENT.

Quite recently the Anglican Church has awakened to the need of not leaving the healing of the sick by spiritual means to its rivals. Valentine Greatrakes, a seventeenth century faith healer, an account of whom was given in the JOURNAL of April 17th, 1909 (p. 963), said that God had made choice of him to work wonders, for the following reasons:

> The first is to convince this Age of Atheism, who cannot yet believe Jesus to be God, when they see pains and diseases to vanish, and evil spirits flye his Power; as I have good cause to believe the Falling-sickness and other Distempers I have met withal sometimes to be. Next, God may, to abate the pride of the Papists that make Miracles the undeniable Manifesto of the truth of their Church make use of a Protestant to do such strange things in the face of the sun, which they pretend to do in cells.

The same reason seems to have inspired some of the modern systems of faith healing.

The Emmanuel Movement took its name from the church in Boston, Massachusetts, where it originated. The movement dates from 1905, when Dr. Joseph H. Pratt, of the Massachusetts General Hospital, laid before the Rev. Elwood Worcester, D.D., a scheme for the treatment of poor consumptives in the tenements of Boston by the class method which was first employed at Emmanuel Church.[4] The success of this enterprise convinced its promoters that the Church has an important mission to discharge to the sick, and that the physician and the clergyman can work together to the benefit of the community. They therefore entered upon a similar work. Before doing so they consulted some of the leading neurologists in America, and were assured of their approval and active co-operation. Had the medical profession, they state, withheld their assistance, they would not have proceeded further.[5]

One of our fundamental ideas is that all work of this kind should be under strict medical control, and to this idea we have been and are consistently loyal. We recognize that in part the

[1] *Science and Health*. By Mary Baker G. Eddy. Boston. 1908. P. 41.
[2] *The Faith and Works of Christian Science*. Macmillan and Co. 1909. The book is now in a second edition
[3] *Christian Science*, London and New York, 1907, p. 86.
[4] *The Christian Religion as a Healing Power*. A Defense and Exposition of the Emmanuel Movement. By Elwood Worcester, D.D., Ph.D., and Samuel McComb, M.A., D.D., Emmanuel Church, Boston. London and Leipsic. 1910. (P. 14.)
[5] *Religion and Medicine*. The Moral Control of Nervous Disorders. By Elwood Worcester, D.D., Ph.D., Samuel McComb, M.A.Oxon., D.D. Glasg., Emmanuel Church, Boston, and Isador H. Coriat, M.D. With a preface by Somerset E. Pennefather, M.A., D.D., Vicar of Kensington and Prebendary of St. Paul's. London: Kegan Paul, Trench, Trubner, and Co., Limited. 1908.

reason why moral therapeutics has been eyed askantly by medical men has been because the therapeutist has too often refused the guidance of science, and has taken up with some type of crude supernaturalism in defiance of the obvious facts of experience. There is, perhaps, no subject around which has gathered so much humbug, quackery, fanaticism, and pseudo-metaphysics. This warning is constantly before us in all our endeavours.

The meaning and aim of their work, they say in their recent work, *The Christian Religion as a Healing Power*, "is to bring into effective co-operation the physician, the psychologically trained clergyman, and the trained social worker in the alleviation and arrest of certain disorders of the nervous system which are now generally regarded as involving some weakness or defect of character or more or less complete mental dissociation." They affirm that there is no attempt in their movement to unify the functions of the priest and the medical man. What they claim is to have brought into existence a new form of specialization, the employment of special knowledge and experience for a special task. If, they say, nervous sufferers, victims of alcohol and other drugs, the unhappy, the sorrowful, would-be suicides, and other children of melancholy felt that religion meant nothing to them, there would be no place for work like theirs. They attach great importance to prayer, but they also believe in convincing the reason of the sufferer, in showing him how the trouble arose and how it may be removed, in arousing within him fresh interest, in soothing and calming his mind by infusion of hope and faith, in leading him to a more satisfactory moral or intellectual outlook. They add:

In a word, we believe that conscious and subconscious are both essential to the integrity of the personal life. Great as is the power of the subconscious, greater still, we believe, are the powers of reason, emotion, and will. Hence, one of the principal remedies for the nervous maladies of which we are speaking is psychic, moral, and religious re-education. Just as an athlete can train particular groups of muscles to do his bidding, so we can exercise particular groups of thoughts until they dominate the mind, and this domination leads of necessity to the elimination of other groups of thoughts which we regard as undesirable. In neurasthenia, hypochondria, hysteria, psychasthenia, and other morbid and abnormal conditions, both conscious and subconscious are involved, and the method which affects both elements in mind would appear to be the most rational and practically the most effective.

It is stated by Drs. Worcester and McComb that several thousand persons have been treated with some degree of success at Emmanuel Church and in other churches. Beyond this small group several million persons in America and in other countries have learnt of their work by reading what has been written about it, and they say, "If we may believe the letters which constantly pour into the church, some of these too have received benefits, which appear sometimes in the form of improved health and greater strength, sometimes in the form of improved habits and a new spiritual life." An institution in which the sick may be treated and students instructed in what may be called the methods of the Emmanuel Church, has recently been founded in San Francisco, under the general direction of Bishop Nichols of California, supported by several of the leading physicians of that city.

THE CHURCH AND MEDICAL UNION.

The Church and Medical Union was established recently with the object of promoting the co-operation of the Church and the medical profession in the healing of the sick. The principles on which the union bases and purposes to carry on its work are embodied in the following paragraphs in the Lambeth Report of 1908:

The Committee believes that Christ still fulfils in Christian experience His power to give life, and to give it more abundantly; and that the faith which realizes His Presence is capable of creating a heightened vitality of spirit, which strengthens and sustains the health of the body. The Committee believes that sickness and disease are in one aspect a breach in the harmony of the Divine purpose, not only analogous to, but sometimes at least caused by, want of moral harmony with the Divine Will; and that this restoration of harmony in mind and will often brings with it the restoration of the harmony of the body.

The Committee believes that medical science is the handmaid of God and His Church, and should be fully recognized as the ordinary means appointed by Almighty God for the care and healing of the human body. The Committee believes that discoveries in the region of medicine and surgery come to man through Him Who is the Light and the Life, the Divine Word.

An article by the Honorary Secretary of the Church and Medical Union, Mr. Geoffrey Rhodes, appears in this issue of the JOURNAL. It may not be out of place, however, to give here a summing up of the general conclusions of the committee of the Union which we find in a recently published account of its work entitled *Psychic Healing*. It is as follows:

(1) Starting with the proposition that religious belief is of definite and important therapeutic value, it is obvious that the best results in the alleviation of sickness can only accrue from the close collaboration of the representatives of the two professions, that of the Church and that of medicine. (2) We have, therefore, seen that to make this collaboration of the greatest use to society it is necessary that as far as possible both the doctor and the minister of religion should be acquainted with and able to avail themselves of the laws revealed to us by modern psychological investigation. (3) Certain difficulties that at first appear to be what might be termed philosophical must not be lost sight of, but must be rather kept in view, as they are valuable aids to the consideration of relationships of cause and effect. It is not necessary here to refer to all of these philosophical difficulties, but one that will occur to all of us is the danger, when religion and medicine are closely approximated, for the latter to be swallowed up by the former. The doctors did not like the bishops describing medicine as the handmaid of the Church, but it is hardly to be expected that the Church can completely subjugate herself to the practice of medicine.

THE SOCIETY OF EMMANUEL.

The Society of Emmanuel must not be confused either with the Emmanuel Movement or the Church and Medical Union. It was founded in 1905, and dispenses with medicine. Its president is Mr. James Moore Hickson, of 22, Talbot Square, Hyde Park, W. In its official organ, *The Healer*, for January, 1908, it is stated that its objects are:

1. To develop the Divine gifts left to His Church by the Master, especially the gift of healing by prayer and laying on of hands, with the object of using these Divine gifts, not only for the healing of the body, but as a means of drawing the souls of men nearer to God.
2. To further this purpose by opening a hostel, especially for poor gentlefolks, a class who are beyond the reach of ordinary help, where their cases may be diagnosed by duly qualified medical men, and where a band of healers may develop and use their gifts to further the work.
3. To form a strong wall of defence against the powers of evil, by mutual united intercession, and by common reception of the Holy Communion on the Second Sunday in the month.
4. To safeguard the central doctrine of the Incarnation, all regular members should acknowledge the divinity of our Lord, *although the operations of the* society should be freely used for all in need of them.

In the report of the society for the year ending June 30th, 1909, it is stated that a hospice had been opened on the outskirts of Regent's Park, near Gloucester Gate, for the reception of in-patients. On May 26th of that year it was "dedicated and set apart for the glory of God and for the service of our acting brothers and sisters" by the Right Rev. Bishop Mylne. We quote the following passage from the report:

There are eight beds in the hospice for in-patients; and, with the exception of a few weeks during the summer recess, they have been fully occupied. Our in-patients without exception have written most grateful letters about their stay in the hospice, and we are thankful beyond measure to Almighty God for the help that He has given them, as they tell us, in body, soul, and spirit. It cannot be too strongly emphasized that a home such as ours, with its chapel for private prayer, devotional meetings, and intercessions, its band of helpers, the visits of the clergy for administration of the Sacraments and spiritual work in preparation for healing, may, under God's blessing, foster to the full an ideal spiritual atmosphere for the Healing Gift. We hope that all our members will come forward to take some active part in this work. We are glad to be able to report that all the healing that has been done in the hospice has been duly certified by qualified members of the medical profession. Dr. James Moorhead and Dr. Rowse have examined the in-patients each week. We owe them a hearty debt of gratitude for their devoted and ungrudging services in connexion with this part of our work.

The following remarks by Dr. James Moorhead are added to the report:

I have had some experience of Mr. Hickson's work during the past two years, and I can say with confidence that he has been the means of bringing much comfort and help—physical and spiritual—to several sufferers. I testify with pleasure that he has been successful in curing or alleviating cases of both organic and functional disease. I shall cite a few cases. I know one patient who was under medical treatment for four months (a consultant was called in) without much if any benefit, and who was cured by Mr. Hickson after six visits. I know another case where an internal growth was diagnosed (and which was believed to be malignant) nearly two years ago by two eminent surgeons, one a London specialist, and the growth gradually disappeared under Mr. Hickson's treatment, and the patient is now well and strong. I know

of a third case—one of locomotor ataxy—which was discharged from two hospitals as incurable, after a residence in one of nearly seven months and in the other of two and a half years, and which, under Mr. Hickson's treatment, has undergone a remarkable improvement. I saw this patient in March, 1908, directly after his discharge from the National Hospital, and he was then in a most deplorable and helpless condition. (I may remark that he was carried from the hospital.) I saw him again yesterday, and the change in his condition was most gratifying. His general health was greatly improved; one would think as he sat in his chair there was nothing the matter with him; he was able to walk pretty comfortably with the aid of a stick, and could walk even a little without it, and when I left he walked down two flights of stairs to see me off. He told me that with two or three rests he could walk a mile or more with the aid of his wife's arm and a stick.

Since the Hospice was opened, from one cause or another I was only able to see a few of the cases that came under treatment, but in every case I saw some improvement took place, and in some the improvement was marked. At present there are some very interesting cases under treatment, and in one case of nine years' duration, and which for six years was under the care of an eminent surgeon, a very gratifying improvement has been noticed.

We make no comment on these statements now, as a Subcommittee of the Medico-Political Committee of the British Medical Association has carefully investigated some of the cases treated in the Hospice of the Society of Emmanuel, and its report will be presented in due course.

We may, however, be allowed to refer again to a case already mentioned in the Journal (May 22nd, 1909). It was cited by Bishop Mylne in a paper which appeared in *The Healer* of March, 1908, as a case quoted in "the latest up-to-date book on cancer which is in the hands of the most scientific men of to-day." Repeated efforts to obtain the reference from Bishop Mylne failed, but we succeeded in tracing the case, and got an account of it from Mr. Butlin, who had never published it. It was a case of growth on one of the vocal cords which was diagnosed to be malignant, but turned out after removal to consist of horny epithelium arranged in layers. It was, in fact, a kind of leucoplakia. A thesis on the subject of such growths was presented to the University of Paris by Gaston Poyet in 1908.[1] The bishop's sensational account was therefore absolutely incorrect. In another case, for details of which we are also indebted to Mr. Butlin, the disease was really a cancer of the larynx. Though not inoperable, the prospect of cure by operation seemed hopeless. The patient was under Mr. Hickson for some time, but although there seemed to be some temporary improvement in his condition, he died within a year of the time Mr. Butlin first saw him.

An Independent Spiritual Healer.

On February 26th, 1909, in response to a letter from the Earl of Sandwich, whose name had been mentioned as attending a meeting of the Society of Emmanuel, a representative of the Journal had the privilege of an interview with his lordship. As giving the views and experiences of a man above all suspicion of interested motives, and who spoke with perfect frankness, the interview was of special interest. Lord Sandwich, who is a visiting governor of St. George's and the Royal Free Hospitals, said he was on the best of terms with the doctors. He wished it to be clearly understood that he did not profess to heal disease; in his own words, he never "cures" anything. Our representative gathered that what he treats is pain and the general feeling of "seediness." His method is to lay his hands on the painful place. Sometimes, with the other hand, he will take one hand of the patient at the same time. In laying on his hand he prays, and he supposes that the patient prays at the same time, but he never tells them to do so. He says that he had no idea of possessing this power until he met Mr. Hickson, as to whose work he was curious. Mr. Hickson told Lord Sandwich as soon as he saw him that he could do just what he himself did, and after that Lord Sandwich treated a number of cases. It should be said that he is not a member of the Society of Emmanuel. Our representative gathered that the patients were mainly people connected with him in some way, but in a lower station of life—that is to say, servants and tenants of his own. He freely admitted that this might possibly have had something to do with his success. He has had a large experience in dealing with suffering people, poor people, and outcasts of one kind or another, and generally succeeds in inspiring them with confidence. When he applies his hand he feels a curious sensation, and at the same time the patient feels something. Children described the sensation as pins and needles. One of the cases mentioned by Lord Sandwich was that of his own butler, who had been operated on for a tumour of the spinal cord at the National Hospital. Sir Victor Horsley, who operated, has kindly placed the notes of the case at our disposal. The following is the record of the operation, which was performed on November 16th, 1907:

Patient lying on right side, an incision 6 in. long was made from just below the occiput downwards. The muscles and fasciae were divided without much bleeding and retracted. The periosteum was stripped from the spines and laminae of the second, third, and fourth and fifth cervical vertebrae. The spines and laminae were removed with bone forceps and saw. The theca appeared distended, chiefly at the level of the third cervical vertebra. Colour normal; no pulsation at this level and below.

The theca was incised by a longitudinal cut. The roots of the third, fourth, and fifth pairs of cervical spinal nerves were seen to be flattened and stretched over an enlarged cord. The enlargement was chiefly on the left side, where, at the region of the postero-lateral tracts, two cysts with a small tumour mass between them were seen on the surface. The cysts were incised and the tumour mass removed with a sharp spoon. The theca was not sewn up. The wound was closed by one layer of interrupted sutures. The perithecal fat was particularly abundant. There was markedly small amount of haemorrhage. The patient stood the operation well.

The patient improved somewhat for a time, but left the hospital on January 18th, 1908. He returned to Hinchingbrooke scarcely able to walk and complaining of great pain. After treatment by Lord Sandwich the pain ceased and he could walk across the stable yard without support, though with difficulty. His condition got worse, and he became completely paralysed below the neck. The man has since died. Another case was that of a girl with congenital syphilis threatened with blindness and generally in so bad a condition that Lord Sandwich said one was tempted to think it was better she should die. Under his treatment, however, she got very much better. Our representative gathered that he did not claim to have driven the poison out of her system. A third case was that of a man with disease of the kidney and heart; he was very ill and confined to bed. One night his wife thought he was dying, and in the morning the man said that he felt as if he could get up and go to work. He could not, however, leave his bed. Lord Sandwich, in reply to a question, said he did not suppose the organic part of the disease was influenced in any way. In reply to an inquiry about the man treated at the National Hospital our representative lately received a letter in which Lord Sandwich said that there had been several instances in which pain had ceased, and extraordinary improvement had taken place in the condition of sufferers whom he had attended. He was unwell himself and ordered by his doctor not to continue this treatment, and had generally abstained from doing so lately. Most of the patients he had attended were suffering from mortal diseases and had since died. Among these was the butler, but Lord Sandwich states that from being totally paralysed he recovered the power of walking. He was perfectly certain that the so-called "spiritual healing" had brought about most marvellous results. It should be added that, although we understand that Lord Sandwich has no objection to the publication of his statements, he is not in any way responsible for the manner in which they are here presented. If there is any inaccuracy, we shall, of course, be glad to afford him an opportunity of correcting any unintentional misrepresentation.

The Archdeacon of London on Spiritual Healing.

In conclusion, we may be allowed to quote the following abstract of the charge of the Archdeacon of London at his annual visitation on April 27th and 28th. We have to acknowledge the courtesy of Archdeacon Sinclair in supplying the abstract of his charge. He took as his subject the "History of Faith Healing." He cited first the Report of the Committee of Bishops appointed to consider the question of Ministries of Healing, the Unction of the Sick, Faith Healing, and "Christian Science" by the Lambeth Conference of 1908. They had laid stress on the attendance of the clergy on the sick, not merely for death-beds; divine power in all sickness; the body as well as the spirit the object of Redemption; the partial neglect of teaching the

[1] *Leucoplasie laryngée.* Paris: Octave Doin. 1908.

duty of reliance on faith and prayer; the indisputable results of the revival of trust in spiritual agency; the aberrations of "Christian Science"; the necessity of the testing by scientific experts of all evidence of spiritual healing; the duty of consecrating personal gifts to God; thankfulness for the triumphs of medical and surgical skill; improvements recommended in Pastoral Visitation, especially the addition of collects more hopeful of recovery; the permission that such prayers should be accompanied by the Laying-on of Hands; the difference between Psychic Forces and Spiritual; the need of prayer for guidance on the whole subject; the impossibility of giving official recognition at present to "Gifts of Healing"; caution to those who believe themselves to have such gifts, especially as to the need of medical study and the avoidance of Occultism and Spiritualism. With regard to the practice of anointing with oil, the Bishops pointed out the obscurity as to the primitive practice; the gradual attraction of the practice as an encouragement to faith into a sacramental preparation for death; and though refusing to prohibit it, declared that at present it could not be authorized by the Church, but that the bishop of each diocese should be consulted. The Archdeacon went on to show how large a part the healing of the sick occupied in the ministry of Christ and His Apostles, and of the Church at large. To the continuance of these gifts evidence was given by Justin Martyr, Irenaeus, Origen, Ambrose, Chrysostom, and Augustine. To the practice of anointing the sick with oil with a view to recovery testimony was found in Tertullian, Serapion, Jerome, the Apostolical Constitutions, the Testamentum Domini, St. Martin of Tours, and others. From the great mass of works of healing in the Middle Ages down to the present time, Mr. Dearmer, who had written on the subject, had selected a list of forty-five, including in recent times George Fox, John Wesley, Prince Hohenlohe, Father Matthew, Dorothea Trüdel, Pastor Blumhardt, and Father John of Cronstadt. Hutton, the late editor of the *Spectator*, took a favourable view of these agencies. In England until the end of the reign of Queen Anne was retained the custom of touching by the king for scrofula, with indisputable results in certain cases. The part borne by faith in healing was fully recognized in the BRITISH MEDICAL JOURNAL. From the JOURNAL accounts were quoted of three remarkable faith healers — Valentine Greatrakes, the Deacon de Paris, and Johann Joseph Gassner. The cures effected at Lourdes might be reckoned at about 5 per cent. In modern times an American movement for faith healing had begun in an episcopal church in Boston, which had not received much encouragement from the authorities on nervous diseases; its promoters had finally decided that nothing should be attempted without the sanction of a responsible physician. In this country, Dr. Alexander Robertson, Physician of Glasgow Royal Infirmary, had practised healing by mental suggestion as far back as 1871 and 1889. In London an association had been formed in 1908, called the Church and Medical Union for the promotion of the recognition of the power of faith in sickness in co-operation with medical skill. There was also the Society of Emmanuel, conducted by Mr. James Hickson, with a view to the employment of spiritual forces in healing. Articles were quoted from the BRITISH MEDICAL JOURNAL which supported the cautious views of the Bishops at Lambeth, acknowledging the wonderful power of mind over matter, and pointing out the lessons to be drawn from the past history of faith healing. The Archdeacon referred to a remarkable discussion at the Harveian Society at a meeting held last autumn, when the powers of suggestion in mental and nervous diseases was fully acknowledged, while the final responsibility of the experienced practitioner was strongly maintained. The upshot seemed to Archdeacon Sinclair to be that there were no limits to the powers of faith and prayer; that many persons, like wise parents, had a gift of personal impressiveness; that the subconscious self was a fact in psychology; that the clergy might do more in their visitations of the sick by encouragements to faith; that the laying-on of hands and the anointing with oil might be tangible helps to faith; and that religion and medical science should always co-operate, while the ultimate responsibility must lie with the accredited physician.

HEALTH VALUES.

BY

GEOFFREY RHODES,

HONORARY SECRETARY OF THE CHURCH AND MEDICAL UNION.

PROFESSOR SIDGWICK once excused himself for devoting two lectures out of a course of three to a definition, and in the present instance I find myself in a very similar position. My friend, Sir Clifford Allbutt, in his *System of Medicine*, says health is an ideal conception, with which assertion I am in complete agreement, for layman, doctor, philosopher, and priest have an ideal before them when they discuss health. Unfortunately, however, not any two of these ideals are the same, and therein lies the main difficulty of coming to any general conclusions in connexion with the phenomenon known variously as spiritual, mental, or faith healing.

One does not by any means get over the difficulty by talking of spiritual health and physical health as two distinct states of being. The realms of consciousness cannot be divided in this way. A sense of wrong-doing can result in a physical breakdown just as surely as a toxic substance in the system may cause mental collapse. It comes, then, to a question of finding some definition of health that shall satisfy all ideals of life.

The great pitfall into which we all, to a certain extent, run the risk of tumbling when we consider the influence of mind over matter is the error of placing physical excellence first. Perhaps I may be allowed to explain what I mean. We no sooner, for instance, realize that thought can control the body than we rush off into the extreme of imagining that, if we only knew how, the mind could be so directed as to obliterate all physical abnormalities of the body. Whether such a process might be scientifically possible or not is quite foreign to my argument. I am merely here interested in the ethical point, namely, the danger of making the spiritual the servant instead of the master of the material. We may not all go to the extreme of trying to cure toothache by being so good that no ache would presume to attack our person, but there is certainly, I believe, a risk of our moving in this direction—it may be all unconsciously—if we do not specially guard against the temptation. Morally it can never be a question of developing the highest in us for the good of the lowest. We know that by cultivating our character we can rise superior to mere material conditions, but we cannot expect to still be counted sane if we pretend that we have completely changed the material. A man may learn to be happy in sordid surroundings. He may consider himself to have become rich in a philosophic sense, but woe betide him if he starts cashing cheques! In the same way, a man who loses a limb may lead a more useful life and be a more valuable citizen after the accident than he was before it, but that will not restore the missing leg or arm. It is irrevocably gone. On the other hand, there would appear to be within each of us a source of psychic energy of which we really know very little at present. That such a reserve fund exists is proved in many ways, as, for instance, when a naturally feeble woman performs some task for her child that entails a herculean effort on the part of mind or body or it may be both. I think it is a mistake to talk of this as being miraculous, for what is the miracle of to-day is often found to be the ordinary working of a scientific law, to-morrow.

The alleviation of sickness by means of the influence of mind over mind is a practice as old as the medical art itself. But it is with certain modern aspects that we are specially concerned. Among all primitive peoples religion and medicine are very closely allied. As civilization advances, the two practices—that of priestcraft and that of surgery—become divided, probably because it is found that an aptitude for metaphysical speculation and for practical medicine does not usually occur in the same person. This division of labours has its drawbacks as well as its advantages. It tends in its first inception towards superstition on the one hand and butchery on the other. Witness the belief in sorcery and the burning and bleeding,[1] not only of the Middle Ages, but of a hundred years back! We have left all that behind, but

[1] Bleeding was of course, based on the pathology of the time.

undoubtedly are still to some extent suffering from the evils of the dual system, the foremost of which has been in recent years the tendency for a sick person to be treated as if composed of two not only distinct but independent parts, the mind, spirit or soul being considered on an entirely different plane from the physical organism. Modern psychological research has, however, tended to the diminution of this error, and has further stimulated a sympathetic regard on the part of the doctors and the clergy for each other's ministrations.

A few words in conclusion on the relationship between the two professions.

Every medical man endeavours to exert a beneficial psychic influence on his patients. All the modern school believe in Professor Osler's mixture of hope and nux vomica. Naturally those endowed largely with what is called "personal magnetism" have a great advantage in the application of this kind of treatment.

But above and beyond this the physician is keenly concerned in all influences that are likely to make for recovery, and the "mental healer" has a definite place in the scheme of cure, just as the chemist, the masseur, or the nurse may have theirs. It is difficult for the doctor professionally to concern himself with dogmatic religion. He has to regard religion rather from a philosophical or ethnical standpoint. It matters not whether he personally be a devout Churchman or what Bishop Welldon has called (I think) a believing Agnostic; in his professional eyes the minister of the Gospel is merely an expert in peace of mind and a messenger of hope.

Reviews.

MIND AND BODY.

A small but highly-important essay, dealing with the psychic treatment of the sick,[1] by Professor Kern, is not one of the usual descriptions of psychotherapeutic practice and of clinical cases and categories, of which large numbers have been published recently. These, as a rule, accept the fact that so-called mental influences, such as persuasion, suggestion, hypnotism, etc., are capable of modifying for good or for ill the mental and bodily states of the subjects to whom they are applied, without attempting any searching examination of the fundamental question of how such action is at all possible. Professor Kern's essay, on the other hand, is a closely-reasoned discussion and attempt at explanation of the one question of how the mind can act on the body.

After a rapid historical survey of psychotherapy, in the course of which he traces it from its beginnings in the magic of the "culture-folk" or primitive peoples—from which medicine only became separated by Asclepiades and later grounded on an empiric basis by Hippocrates—through incubation or temple-sleep, exorcism, miraculous healings, animal magnetism, and mesmerism up to the hypnotism of to-day; and after referring to the work of Scheidemantel (1787) on the emotions as healing agents, and of Johannes Müller (1842) on the interaction of soul and body, he describes how the doctrine of the conservation of energy, which dates from 1842, appeared to deal the death blow to mental action on bodily processes.

Concerning this, he says that an age of anatomical and physiological scientific medicine does not perceive its helplessness with regard to mental processes, nor see that its foundation, the law of a closed causality, is refuted by every instance of the working of the mind on the body. Man, he maintains, is a psycho-physical unity, and it cannot be denied that bodily conditions markedly affect mental states, and vice versa. Common opinion, he says, finds an easy way out of this difficulty by abandoning the question as insoluble, that is, by proclaiming the limitations of human intellect and the unknowableness of the essence of all things. Before criticizing the various explanations which have been advanced with regard to the mutual relations of mind and body, and before exposing his own views, Professor Kern brushes aside this doctrine of the unknowable. Science, he maintains, cannot rest here. Natural science, he says, is in the right in ascribing to mental or spiritual and spaceless things an epiphenomenal value, but in the wrong when it begins to reckon with this epiphenomenon, and to assert its unknowable character, particularly as mental phenomena are the only processes of which we have immediate knowledge, being more truly knowable than spatial and material processes known only by the intermediation of the senses. Physiology, as a part of natural science, is concerned only with things with spatial content. To psychology, on the other hand, the objective facts are strange and foreign, and the chasm between them still unbridgeable, or only to be spanned by an investigation into the nature of knowledge. A great part of the difficulty, he considers, has been unnecessarily imported into the matter by way of framing the question, that is, by regarding mind and body as separate entities. Of mind, or soul, we know nothing; we know only mental processes, and mind is only a concept or *Denkbegriff* to which we fasten a chain of mental events. The body also is only a chain of organic processes for whose permanent and actual foundation we vainly seek, and whose constant connexion in time and space alone justifies us in regarding it as a separate entity. "Mind" and "body" are thus for us, whatever their actual essence, secondary concepts whose uniting point is to be sought, as already said, in the nature of knowledge.

Disregarding these abstractions of mind and body, and confining his attention to the twin series of bodily and mental events—or, as he would say, the same series differently regarded—Professor Kern passes under review and discards, first, materialism, according to which mental processes are the result of neuro-cerebral processes; or more cautiously, as "epiphenomena," bi-products whose appearance belongs, if materialism be accepted, to the realm of the marvellous: a position, he says, not recognized by science to-day. He then briefly discusses and dismisses neovitalism; then dualistic interaction theories, according to which a conversion of physical energy into "psychical energy" is assumed, such as is implied, for example, in the statement that external stimuli give rise to sensations, sensations to perceptions, perceptions to ideas, etc., or that mental processes influence cortical motor paths, and eventuate in action or muscular movement. Such statements, he contends, cannot be reconciled with natural laws.

Next, in very interesting fashion, he traces the development of the psycho-physical parallelism doctrine from its origin with Descartes and Leibnitz. This view, which is sometimes called a hypothesis and at others a theory, though it is neither, in order to furnish some sort of causal explanation of the invariable side-to-side relation of the bodily and mental series of events, had to assume the existence of a divinely pre-established harmony (Leibnitz and the Occasionalists), the necessity for which assumption is frequently overlooked by the modern exponents of this view. Although discarding this view, he gives it importance as marking a stage in the progress of our conception of world phenomena, of which the next stage was the positing of an "identical third" between the two series; then the view (Fichte and Fechner) that the mental and the bodily series were merely the two sides of one and the same process; and, finally, the hypothesis, which he himself adopts, that the apparent difference between the mental and bodily series lies entirely in the mode of regard—that is, whether apprehended objectively or subjectively by the apprehending subject.

[1] *Die psychische Krankenbehandlung in ihren Wissenschaftlichen Grundlagen.* By Berthold Kern. Berlin: August Hirschwald. 1910. (Pp. 58. M. 1.20.)

Proceeding to the exposition of this view in relation to mental phenomena, he acknowledges that in the forefront of any discussion lies the law of a closed natural causality, that a physical cause can produce only a physical effect; and he further admits—even leaving out of account the particular investigations of Robert Mayer, Rubner, and Atwater—that this law holds good for animal and human organisms as much as the inorganic world. At the same time, and dismissing any naïve interaction theory, he firmly maintains there is a continual transformation of mental into bodily processes in action during our whole life. "Mental processes, after they have become developed, accustomed, and habitual, become automatic, and finally purely bodily and mechanical." What, then, is the distinction between these two systems of bodily and mental processes? According to Professor Kern, the sole fundamental distinction lies in the employment of the concept of space. The bodily equals spacial-material, the mental equals spaceless-immaterial; only space-filling content being regarded as material. We have therefore not two real processes, but only one and the same fundamental real process, which we regard objectively as space-filling or bodily, and subjectively as spaceless immaterial or conscious and mental; that is, the apparently two-fold nature of the bodily and mental series is resolved into a two-fold ideal system or mode of regard, and identity replaces difference.

Certainly the will moves our members, and certainly stimuli evoke sensations, but in speaking so we continually change from one system of ideas to the other. Expressed in purely physiological terms the movement of our members is due solely to changes in cerebral motor areas and these again to external and internal excitations, mostly after a complex series of associative and dissociative processes in the cortex, which latter we describe psychologically as thought, feeling, will, etc.

Turning to the application of his theory to mental therapeutics, Professor Kern discusses the means or methods of psychotherapy, the nature of their action, and the indications and conditions for their employment. First with regard to therapeutic measures, and accepting the fact that psychotherapy has as its point of application the ideal life (*Vorstellungsleben*), Professor Kern stands firmly on the ground that a sharp distinction between psychic and somatic therapy is impossible, seeing that the bodily and mental series are at bottom identical, and that psychic therapy must, therefore, depend on the employment of physical means of some order or other. The sole difference between psycho-therapy and somato-therapy lies in the fact that the former aims at engaging and influencing the consciousness of the subject, whereas the latter does not. Under therapeutic means, therefore, Professor Kern includes all stimuli, whether of sight (writing, pictures, etc), sound (speech, verbal suggestion, command, music, etc.), touch, or smell, which are capable of setting in activity some, or inhibiting other, neuro-cerebral tracts which, either by racial or individual use, have acquired certain associations and memorial or emotional values, and which, being regarded subjectively, are conscious or mental in character. It will be observed that use, which is also the essence of recollection, furnishes Professor Kern not only guidance as to the means of psychotherapy but also the fundamental explanation of its action; that is, it is by the employment of definite and carefully-chosen physical stimuli which excite neuro-cerebral complexes possessing marked conscious and particularly emotional values of service to the individual, that psychotherapy must act.

For Professor Kern's brief discussion of hypnotic suggestion in the light of his views and for the indications he gives for treatment we must refer readers to this interesting pamphlet. Although Professor Kern adduces no new facts, his exposition of his views throughout is lucid and suggestive, and capable of much wider application to psychotherapy than was possible in the brief space of his essay. If for no other reason than that it helps to remove the action of suggestion from the realm of the marvellous and to reduce it to a refined somato-therapy, though this is the least of its merits, it deserves the widest reading and reflection.

SOMNAMBULISM AND MYSTICISM.

A few years ago Dr. L. LOEWENFELD, of Munich, a well-known writer on mental diseases, published an essay on the several forms of somnambulism, bringing them into relation with such pseudo-scientific phenomena as clairvoyance, telepathy, transposition of the senses, mediumship, and so on. He has recently brought his study up to date on the side of the occult by a consideration of some of the more recent and striking claims of the exponents of spiritualism and allied forms met with in modern medico-psychological obscurantism. His elucidation of the connexion between somnambulistic processes and the beliefs in supernatural powers to which they have given origin in *Somnambulismus und Spiritismus*[2] is satisfactory, and he incidentally describes many striking cases of somnambulism. His well-reasoned and temperately-worded statement of the scientific standpoint affords a valuable corrective to mysticism in general, and in particular to that uncritical acceptance of spiritistic pretensions exhibited by many whose claim to be men of light and leading in their own professions is apt to be too readily accepted by the public. Some of these distinguished persons, though acutely critical in their own domains, seems to lose all their critical faculties when they approach the boundaries of our present knowledge. This tendency appears to be almost ineradicable in human nature, and forms another example of "the will to believe" whose direction is in this case determined by a kind of mental atavism or survival of the effects of primitive superstitions.

NEURASTHENIA.

IN a brief and rather diffuse discussion of the *Pathogeny of the Neurasthenic States*, which has been translated by Mr. E. G. Richards,[3] Professor DUBOIS, of Berne University, maintains that the term "neurasthenia," though rightly indicating the asthenic character of these states, has two drawbacks. One is that it raises the supposition that the *fons et origo mali* is some physico-chemical alteration of the nerves—a conception, he says, which has taken possession of the minds of medical men. The other is that it encourages the idea—an idea against which he protests—of a morbid entity or a limited affection easily separable from other graver psychoneuroses. For Professor Dubois, neurasthenias, or neurasthenic states, as he prefers to call them, are of mental nature, in fact psychasthenias, forming only one group, and that not a very stable one, of the psychopathies, into which they merge. In classifying the psychopathic states into neurasthenic, psychasthenic, hysterical, hypochrondriac and melancholic, Professor Dubois maintains that all proceed from the same causes, their form being determined by inherited and constitutional factors and the education of the subjects, and their classification decided by the symptoms of fatigue, exhaustion and incapacity in the case of the neurasthenic; obsessions, tics, phobias, etc., in the psychasthenic, and exaggerated autosuggestibility and a weakness of mental synthesis in the hysterical. The basal condition in all these different forms, including hypochondria and simple melancholia, is, he says, a primitive mental defect, a psychasthenia, springing from an original inferiority. In neurasthenic states the neurasthenic crisis is merely the episodic appearance of an ingrained weakness for which physical remedies may do something, but which, according to the author, calls above all for mental treatment, self-education and moral self-discipline.

[2] *Somnambulismus und Spiritismus.* By Dr. L. Loewenfeld. Zweite Auflage. Wiesbaden: J. F. Bergmann; and Glasgow: F. Bauermeister. 1907. (Sup. roy. 8vo, pp. 71. 2s. 3d.)

[3] *Pathogeny of the Neurasthenic States.* By Dr. Paul Dubois. Authorized translation by E. G. Richards. Edinburgh and London: W. Green and Sons. 1909. (Cr. 8vo, pp. 61. 2s.)

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MEDICINE AND MIRACLES.

FOR a considerable time there has been a growing reaction against the dogmatic materialism which held sway over the minds of scientific men thirty or forty years ago. To Huxley, Tyndall, or Herbert Spencer the expression of a belief in the possibility of supernatural agency would have branded a man as a fool or an impostor. Hell was, it may be remembered, dismissed with costs by a high judicial authority; to the man of science heaven and miracles, and life and death, were explained by that blessed word "molecules." Now science is less cocksure about a great many things, and men are not so ready as they were, when the generation now fading into the sere, the yellow leaf was, in Byron's phrase, juvenile and curly, to declare that what they do not know is not knowledge.

One of the most remarkable results of this recognition of the limits of science is the present attitude of the medical profession towards what may for the sake of convenience be generically described as faith healing. The change is so great that it seemed to us that the time had come to invite some of those who could speak with the highest authority on the relations between mind and body, as exhibitedi n the phenomena of disease, to state the results of their observations and experience.

The body of opinion which we have been able to collect deserves attention from all who are interested, professionally or philanthropically, in the relief of human suffering. It serves as an authoritative reminder that there are bodily ills which cannot be cured by pills and potions, but which yield to methods which, for want of a better word, may be called "mental"; that cures which in a former day would have been denied by unbelievers and accepted as miracles by the faithful really happen, and that they can be explained without invoking supernatural intervention. Some one has described a metaphysician as one groping in a dark room for a black hat which is not there. Though we are still groping in a dark room, we have learnt to know that the hat is, or at any rate may be, there. The problem is to find it. Towards the solution of this practical problem the papers which we publish, each in its own way, supplies a help.

Our distinguished contributors have virtually said all that can be said in regard to faith healing from the medical point of view at the present time. An attempt to summarize them here would spoil their cumulative effect. The reader should study them carefully for himself. We can only call attention to a few points. Sir Clifford Allbutt shows in his references to St. Teresa, who was the incarnation of good sense, how far we have travelled since Macaulay described her as "the mad nun of Avila." He reviews the history of faith healing from antiquity to the present day; and he well says that probably no limb, no viscus is so far a vessel of dishonour as to lie wholly outside the renewals of the spirit. On this conviction the hopes and methods of faith healing depend. He draws a clear line of demarcation between the function of the physician and that of the clergyman, but he shows that they should not be enemies, but allies. In sickness the mind is always more or less diseased as well as the body, and herein the patient cannot minister to himself, as he is sunk in apathy or despondency. Here the spiritual healer may most usefully co-operate with the doctor.

Sir Henry Morris discusses the "miracles" of Lourdes and the "cures" of Christian Science in a large and philosophic spirit. While rejecting the miraculous character of the cures at Lourdes, he throws no doubt on the good faith of the medical men to whom the inquiry into the genuineness of the cures is entrusted, but he holds that there is nothing in these "cures" that cannot be matched by the operation of natural causes, and he brings forward in illustration some striking cases of the immediate and spontaneous cure of diseases which had brought the patient to death's door. It may be pointed out that it is the instantaneous character of the cure which is claimed as the special feature of the Lourdes miracles. While not gentle in his handling of Lourdes, Sir Henry Morris reserves the sharpest arrows of his criticism for Christian Science. After referring to the total want of trustworthy and independent evidence in Mrs. Eddy's own cases of reputed cures, he says that, compared with the Lourdes craze, Christian Science is as a snare and a pitfall to a refuge and a haven of security. "No deprivation of medical treatment, or of physical aids to comfort or relief, is required by the former; no excuse of failure is sought in extraneous trifles to pacify or impose upon the pilgrims to the grotto." Though speaking from the rationalist standpoint throughout, Sir Henry Morris believes in the power of faith, which, he says, is much—"perhaps it is really everything to man." But he takes care to add that happily it was given to him ages before Christian Science was dreamed of.

Mr. Butlin's paper is of special interest, as he has seen more of cancer than most surgeons, and such cases form the best test of the reality of cures supposed to be wrought by faith. He, too, believes in the good faith of the official reporters of the Lourdes miracles, but he shows how fallacious experience is in such matters. He gives instances of the disappearance of tumours in persons who have not been treated by faith ,but who have been condemned to death by the most capable surgeons. Both these and the similar cases which are claimed as faith cures, he presumes to be instances of inflammatory, not malignant disease. But they are solid masses, and may be classed as conditions of organic disease. He is prepared to go a step further, and to suggest that now and again a case of true organic disease may perhaps be cured by faith. It is well known that cancer sometimes gets well spontaneously, or the disease may without obvious cause be arrested for a longer or shorter period of time. If such things should happen, as they well may, in a patient undergoing any system of faith cure, the case would naturally and honestly be claimed as a miracle. He has seen cancer cured not only by faith, but by some of the many remedies which at one time or another during the last thirty-five years have been put forward as remedies for the disease. In some cases the diagnosis was at fault, but in others scientific tests left no room for doubt. The curious thing, however, is that the remedy seemed to lose its charm in the hands of others, and even in those of the person after one success. Mr. Butlin asks whether the remedy did not chance to produce that change in the body of the patient, the nature of which our cancer investigators are trying to discover, which rendered it capable of resorbing its

cancer, and made it immune to another attack of the same variety of cancer. For the present, he says, the question must remain unanswered.

The lesson of Professor Osler's paper is contained in the concluding words, in which he urges that our attitude as a profession should not be hostile to faith healing. He has seen much of the curative effects of faith made operative either by the personality of the physician, or by the attractions of a new gospel which offered to people a new way of life, "a new Epicureanism which promises to free the soul (and body) from fear, care, and unrest." The "miracles" of Christian Science, he says, lie exclusively in the realm of functional disorders. He has not met with any case permanently cured. He knows of reputed cures of locomotor ataxia, but, he adds significantly, "two of these patients still take opium for the lightning pains"!

In an editorial article we have endeavoured to trace the history of faith healing from the temples of Asklepios to the growth of Lourdes and the churches where the cult of Mrs. Eddy flourishes. The general uniformity of methods and the similarity of the results obtained are very striking.

Dr. Claye Shaw tells us that hypnosis and suggestion are everyday facts. As to the latter, some, he says, aver that it is merely the acceptance of an idea which is made or reinforced by repetition, and which thus becomes a belief and therefore sets up an action desired by the suggestor. And, he asks, who shall gainsay them? Who indeed? Is it not the idea "made strong or reinforced by repetition" that gives power to nearly all the teaching of the pulpit, to the eloquence of Parliament and of the hustings, to the pleadings of the bar, to the education given at school and college, and, to come to a lower plane, to the advertisements that meet the eye wherever it may chance to rest for a moment? *Gutta cavat lapidem non vi sed saepe cadendo.* To come to the special application, does not suggestion play an immense part in the sick-room? The power of suggestion goes largely to the making of the successful practitioner; without the faculty of inspiring faith in the patient, learning counts for little. Falstaff says that knowledge is like a hoard of gold kept by a devil till sack sets it in act and use. Suggestion, if we may say so, is the sack that sets in operation the recuperative powers that in the sick man often lie imprisoned by paralysis of the will. Avicenna divined this truth when he said, "Plus interdum prodesse fiduciam in Medicum quam medicinam."

In suggestion, then, lies the secret of faith healing. But it must be applied by the right person, and a physician may be able to influence one person and be powerless with another. The difficulty is to discover how it is to be applied and how its exercise is to be safeguarded. For it can work for evil as well as for good. Suggestion, of course, has its limitations, which are obvious enough. It varies in degree and also in nature. It is outside our province to discuss prayer from the theological point of view. But it is unquestionable that prayer, inspired by a living faith, is a force acting within the patient which places him in the most favourable condition for the stirring of the pool of hope that lies, still and hidden, it may be, in the depths of human nature.

As for miracles, it is an otiose solution of the problem to dismiss them as impossible, and on that *a priori* ground to reject them, like David Hume, without investigation. We do not know enough to say that anything, however outside experience it may seem to lie, is impossible. The man of truly scientific mind should always bear in mind *le grand peut-être* of Rabelais. There is evidence enough of the existence of natural forces working under unknown conditions, but which can be utilized for the healing of disease. Research has been too exclusively confined to the laboratory, and we hope that the papers which we publish to-day will stimulate inquiry into the "miracles" of healing in their relation to medicine. The investigation is surrounded by pitfalls. Among the most serious of these are human fallibility, especially where the wish is father to the thought; and the tendency, noted by Huxley and others, and exhibited in many directions, to deliberate lying on the part of persons of the highest moral character.

In conclusion, we ask all who practise the art of healing to meditate on the words of the poet:

> Our greatest good and what we least can spare
> Is hope; the last of all our evils fear.

Whatever exorcises the demon of Fear and brings to the sick man's bed the Angel of Hope is a powerful aid to medical treatment. It is therefore as unscientific as it is inhuman to put aside faith healing as mere superstition.

A PHILOSOPHY OF MENTAL HEALING.

ALTHOUGH psychotherapy is the oldest of all forms of medical treatment, having its origin in the magic of our remote ancestors, and although it has been practised, wittingly or unwittingly, and veiled under some form or another down to to-day, there is no part of the whole domain of medicine which offers such impenetrable barriers to investigation. The empiric facts, the cures wrought under mental and emotional influences, have abounded at all ages in history; yet the modern practitioners of mental healing—even after excluding the mystical utterances of Christian Scientists, faith healers and other dabblers in the occult—either give hopelessly discrepant explanations of the phenomena with which they deal, or with a wiser caution confess their ignorance.

There is, of course, nothing to occasion surprise in this, seeing that a fundamental elucidation of the nature of psychotherapy would involve a solution of that apparently inscrutable problem, the connexion of mind and body. To this task, however, Professor Berthold Kern has addressed himself in an essay, containing in small compass the principal conclusions of his larger works on mind and brain, and composed almost entirely of a closely reasoned discussion and attempt at explanation of how the mind can act upon the body. That it can and does so act has, he says, never been called in question, for it is an immediate and unimpeachable experience.

It should, perhaps, be said at the outset that Professor Kern finds in monism his *Weltanschauung* and adequate explanation of this fundamental issue to which many, he says, exhibit a lethargic indifference, "basing their theory on X and their practice on Y, at one time swearing according to a rigid natural science and at another practising psychic therapy, and thus paying tribute to the doctrine of the separation of soul and body, with all its sense-bewildering consequences." Professor Kern's views are more fully treated elsewhere in this issue,[1] and we need only say here that he is an exponent of the identity of mental and bodily processes, and that for him the apparent difference between them lies solely in the

[1] See Review, page 1498.

mode of regard, that is whether they are regarded subjectively or objectively by the apprehending subject.

On the general question, the first point to be discussed is the law of causality, the fundamental law of natural science. Here he at once admits the validity of this law, not only as applied to inorganic nature but also to the animal and human organism. Obviously, a causal relation between a spaceless, immaterial, and mental process on the one hand, and a spatial, material, and bodily process on the other—if these two processes were not one, but two—would be an infraction of this law. Laws are, however, generalizations from the facts of experience, and must be thrown upon the scrap-heap of empty dogmatism if broken by a single contrary experience. May, he asks, psycho-physical interaction be such an experience? His answer to this is that the question is wrongly framed. It is an empiric fact, he says, that during our whole life mental processes and mental capacities, after they have become habitual, become automatic, and finally unconscious and purely bodily and mechanical processes. In the individual, as in the race, this transformation of the conscious and mental into the unconscious and bodily is continually in process, resulting in the performance of "complicated reflexes, co-ordinated conduct, and entire thought processes" quite independently of consciousness, in the manner on which they had been trained or exercised. The terms "subconscious" and "unconscious mental processes" have thus arisen—terms which he considers quite untenable and self-contradictory. That is to say, for Professor Kern only those processes which are conscious deserve the designation of mental.

Waiving all discussion of this point here, Professor Kern maintains that this one fact of the conscious sinking into the unconscious furnishes an irrefragable proof of the immediate kinship of bodily and mental processes. "We have here not merely co-ordination, not merely parallelism, but transformation. The supposed antithesis, the difference in kind between mental and bodily processes vanishes under our hands and their identical nature presses upon us irresistibly if we are sufficiently unprejudiced and not self-deceived by false conceptions, such as 'unconscious thought,' and the like."

We must pass by Professor Kern's elucidation of the knotty point of the origin of this double mode of regard—subjective and spaceless; objective and spatial—of the one identical and real substance; also his demonstration of the entire harmony between this monistic explanation and the facts of cerebral localization, the latter a point too obvious to call for detailed exposition. On this latter matter Professor Kern prophesies that psychology as a whole must become finally an ideal physiology of the brain; though at present, owing to defective knowledge of cerebral physiology, we are continually driven when in difficulty to the employment of psychological terms, on account of their greater wealth. In ordinary speech, and even in scientific language, we are continually, he says, alternating between one system of ideas and another. ("Certainly the will moves our members, and certainly stimuli evoke sensations, but in speaking so we continually change from one system of ideas to the other. Expressed in purely physiological terms, the movement of our members is due solely to changes in cerebral motor areas, and these again to external and internal excitations, mostly after a complex series of associative and dissociative processes in the cortex, which latter we describe psychologically as thought, feeling, will, etc.") But this, he says, is not interaction between the psychical and the physical, but simply a change from one system of ideas to another.

The bearing of the foregoing physiological view of mental processes upon psychotherapy, which thereby becomes incorporated into general medicine, is clear enough almost to anticipate description. Psychotherapy in fact becomes, to its undoubted advantage, a refined, though as yet rather nebulous and vague, somatotherapy, unless, as Professor Kern points out, it be claimed that mind can act immediately on mind. All of the methods of psychotherapy, whether by oral or written suggestion, pictures, music, etc., depend on the intermediation of physical stimuli, and the sole distinguishing feature of psychotherapy—for Professor Kern—is that it aims at engaging in some way the consciousness of the subject and thus modifying the conceptual life. This latter it achieves when the physical stimulus (order, verbal suggestion, etc.) sets in activity certain physical neuro-cerebral complexes, or inhibits others; it being assumed that these complexes, either by heredity, education or training, use or habit, have acquired certain memorial and emotional values and associations. If this physiological view be accepted, the nature, effect, scope and limitations, and the indications for psychic treatment are plain.

In this account of Professor Kern's views there remains but one essential matter so far untouched, and this, perhaps, the most important, as it is certainly the most obscure. For Professor Kern, as for many others, mind and consciousness are conterminate, and consciousness "is nothing but the spread of all excitations in the central nervous system." This statement, by itself, might be taken as allowing to all excitations, of however humble place in the neuro-cerebral hierarchy, a certain degree of consciousness. As will have appeared from the foregoing, however, and as he explicitly states in his book on the problem of life,[1] this is not his meaning. On the contrary, he restricts the sphere of consciousness solely to the highest cortical processes, and of these to only such as have not by long use sunk into unconscious and material processes. Otherwise, he says, we might describe even metabolic processes as unconscious mental processes, and thus arrive at the phantasies of panpsychism. With this denial of the Leibnitzian contention that even the vegetative processes in the living organism have a psychic correlate, and for want of some explanation how consciousness springs miraculously into being in higher cortical processes without being already given in the lower, Professor Kern's argument, in so far as it purports to be a monistic explanation of the origin of mind, crumbles to pieces.

The ineradicable longing for a unitary conception of the universe, for a single solution of multiple phenomena, is characteristic of the philosophic mind, and medical men, imbued with the facts of cerebral processes, must be favourably disposed to some form of monism—though whether idealistic or materialistic is of less consequence now than formerly. The amazing result of recent physical research, that investigation of the tangible, concrete, and sensible, conducted along the lines of rigidly inductive science, leads directly to the intangible, supra-sensible and inconceivable, to a world in which

[1] *Das Problems des Lebens in kritischer Bearbeitung.* By Berthold Kern. Berlin: August Hirschwald. 1909. Pp. 552.

all values derived from our experience become futile, and whose actual nature can only be dimly suggested by mathematical symbols, is doing away with the old antagonism between idealism and materialism, the sole respect for the ideal and disdain of the material. But if monism be embraced, of whatever form, there seems no escape from the logical conclusion that mind is either everywhere or nowhere.

THE SPECIAL GENERAL AND REPRESENTATIVE MEETINGS.

THE Special Representative Meeting for the consideration of the special report by the Council on the reply received from the Privy Council to the application of the Association for a Royal Charter of Incorporation, and upon the action which should now be taken, will commence on Tuesday week, June 28th, at 3 p.m. The agenda for this meeting was published in the SUPPLEMENT of May 28th, and will be seen to provide for the consideration of a draft, submitted by the Council, of new Articles of Association and By-laws of the Association as now constituted, and also for the consideration of a recommendation of the Council that, in order to obtain the extended powers desired by the Association, steps shall be taken with a view to the formation of a new company possessing those powers. The meeting, which will be held in the Connaught Rooms, Freemasons' Hall, Great Queen Street, London, W.C., will, if necessary, be adjourned until the following day, and an Extraordinary General Meeting of the Association has been summoned to meet at the same place at 11 a.m. on Wednesday, June 29th, for the purpose fully set out in the official notice published in the SUPPLEMENT, June 11th, and on p. 400 of this issue. Arrangements have been made with the railway companies to issue to members of the British Medical Association attending the Special General and Representative Meetings in London return tickets at a fare and a quarter on presentation of a voucher signed by the Financial Secretary and Business Manager. This voucher will be sent to all Representatives and members of Council, while other members of the Association can obtain them on application to the office of the British Medical Association, 429 Strand, London, W.C. These reduced fares are available from June 25th to June 30th. An announcement showing that similar railway facilities have been arranged for members attending the Annual Meeting in London at the end of July will be found in the Programme of the Annual Meeting published in the SUPPLEMENT, which also contains a form which members who propose to attend the Annual Meeting next month are requested to fill up at once, for the reasons stated by the Honorary Local Secretaries in their letter published at p. 1516. It is particularly desired that members resident in London, as well as those who reside elsewhere, should make use of this form.

INSURANCE FOR MEDICAL MEN.

IN an article published last week we ventured to make some observations on the business of insurance, pointing out that a man must pay the market price for the protection he desires, and cannot hope to obtain anything for less than its actuarial value, much less for nothing. If he obtains any protection which is not illusory—and inadequate protection, by giving a false sense of security, is almost worse than none—he must make up his mind exactly what benefits he wants to secure, and then, by taking expert advice and comparing the rates of different companies, ascertain what it ought to cost. The methods of insuring are continually being improved and extended, and the insurance companies are showing themselves ever more ready to adapt their policies to the particular needs of the individual. To those members of the medical profession who insure through the Medical Insurance Committee this elasticity in methods is an unmixed benefit, for the premiums are, of course, in any office recommended by the Committee, fixed on a sound actuarial basis. The agent of the Committee has recently brought to notice a form of life policy which contains features likely to commend it to medical men, more especially when it is remembered that there is a very great advantage in taking out a life policy as early in life as circumstances will permit. Under this policy, if before he attains the age of 60 years the person assured becomes, and continues for a period of not less than two calendar months, totally incapacitated, either by accident or by bodily or mental disorder, from carrying on his professional business, a part of the premium next due, determined by the proportion which the time for which the total incapacity has extended bears to the period covered by the premium, will be remitted, and, if incapacity prove to be permanent and total, the policy will be free from the payment of future premiums. In the event of the person assured sustaining before the age of 60 the loss of two limbs, or the complete and irrevocable loss of the sight of both eyes, one-half of the sum assured will be at once paid; no further premiums will be required, but the remainder of the amount will be paid with bonus additions, if any, at death, or, in the case of endowment insurance, at previous maturity. Further, if the policy holder be temporarily unable to pay the premium, the policy, if it has acquired a surrender value, will be kept in force for one year, at the end of which period the then surrender value will be applied to convert the assurance into a paid-up assurance without participation in future profits. Special reduced premiums are allowed to total abstainers of two years' standing under certain conditions. With regard to accident policies, it is surely obvious that all medical men, but specially those in general practice, should take this precaution. The motor car and cycle are now so much used that the number of claims arising under this head alone is very considerable. In one recent case a doctor who attempted to pass two tram cars on his cycle was fatally injured, and the sum of £1,000 to which his widow became entitled was an important addition to her resources. Sudden acute illness involving incapacity from professional work as complete as serious accident may fairly rank on the same footing, and policies can now be obtained to cover both risks. As an example we may take a policy which the Medical Insurance Committee is able to offer. It covers accidents of all kinds, and temporary total disablement by any one of a list of fifty diseases, including all the ordinary acute specific fevers, septicaemia and pyaemia, and a number of serious and common diseases, such as acute pleurisy and appendicitis, but not acute rheumatism. For an annual premium of £7 a medical man will be entitled under this policy to £1,000 in case of death or permanent total disablement—loss of two limbs, or sight of both eyes, or loss of one hand or foot and sight of one eye; £500 for permanent partial disablement—loss of one limb or sight of one eye. These amounts are doubled if the accident occurs in a railway, tramcar, or passenger lift. For permanent general disablement by accident an annuity of £30; for temporary total disablement £6, or, if by railway, tramcar, or passenger lift accident, £12 a week. For temporary partial disablement £1 10s.

a week—twice this if by railway, tramcar, or lift. The weekly allowances for temporary disablement by accident or disease are payable for a period up to fifty-two weeks. Another policy on the same lines giving similar compensation for accidents and for a shorter list of twenty-one diseases, including all the acute specific diseases as well as acute pneumonia and appendicitis, is issued at an annual premium of £6. In respect to both policies a reduction of 10 per cent. in the premium is made after the policy has been in force for five years, and a further reduction of 5 per cent. after ten years if no claim has been made during the second five years. The first-mentioned policy also entitles the holder to a cumulative bonus by which the capital sums assured in the event of death, permanent total disablement, and permanent partial disablement are increased by 5 per cent. per annum until the original sums insured are increased by 50 per cent. The policies cover the risk of accident and disease by land and water when travelling in the United Kingdom or on the continent of Europe, or while voyaging from one European port to another. The premiums quoted apply only to healthy, sober, and temperate persons, without any physical defect or infirmity, residing in the United Kingdom, and between the ages of 20 and 60. An immediate reduction of 10 per cent. in the premium is made to total abstainers. The annual premium for a policy giving similar compensation for accident and for temporary total disablement by typhoid, typhus, and scarlet fever, diphtheria, measles, or small-pox, only is £5. The annual premium for a policy giving similar compensation for accidents only is £4. The accident or disease allowances are limited to twenty-six weeks in any one year. We have instanced these two classes of insurance business as presenting certain features of novelty, and may recur to the subject again, but full information can at once be obtained on application to the agent of the Medical Insurance Committee, 429, Strand, London, W.C.

CHILD EMIGRATION.

In the Journal of December 4th last an account of the foundation and objects of the Society for the Furtherance of Child Emigration was given, and the general subject has recently been discussed by several correspondents in connexion with the much debated question of Poor Law reform. Of this it certainly forms a part, whether Poor Law reform be regarded from the point of view of those who would aim solely at removal of all causes of destitution, of those who would deal mainly with its effects, or of those who meantime pay the piper, namely, the destitute themselves and their rate-paying supporters. There is, too, another class of persons who cannot shut their eyes to the need of satisfactory provision for State or destitute children—those who regard all emigration schemes with dislike, painting pictures of an England inhabited solely by the old and the unfit, and drawing examples of its outcome from the history of Ireland and more northernly Scotland. The society does not ostensibly aim specifically at meeting the views of any of these classes; nevertheless, it may be regarded as in some degree entitled to the sympathy of all of them. Indirectly, it takes up the ground that the empire is a single, indivisible, whole, thus silencing the anti-emigrationists, while destitution, with all its direct and contributory causes, it regards as mainly a question of environment. To the ratepayer it holds out promises of lessened outlay on State-supported children, and to the destitute child the prospect of a much more desirable form of existence than any at present within his reach. Child emigration in itself is, of course, no new idea; but hitherto the children have been either assigned to foster parents, boarded out, or found situations. The society treats education, physique, moral and technical, as the first essential. The children of both sexes aged between 8 and 10 are to be placed at small farms grouped round a central farm or farm school worked by staffs of men and women skilled in various branches of agricultural and domestic science, and capable of teaching what they know. On these farms the children are to remain until quite grown up and thoroughly capable of leading useful, independent lives. Each of these groups of farms is expected to become more or less self-supporting, but meantime assistance is looked for from philanthropists and boards of guardians, should it be made legal for them to pay £20 a year for the keep of a child in a colony instead of about £30 for its keep in some part of the British Isles. The plan may perhaps seem somewhat visionary, but appears to be regarded as thoroughly practical and eminently desirable by many persons who ought to know, including representatives of Colonial Governments. The pamphlets issued by the society are worth study by those interested in the settlement of problems of sociology. Copies of them can be obtained on application to the Acting Honorary Secretary, Mr. Kingsley Fairbridge, Exeter College, Oxford.

THE ELECTRIC-BATH TREATMENT OF THE INSANE.

There can be very little doubt that Dr. Goodall is right in saying, in a recent paper,[1] that the electrical treatment of the insane, at least in this country, has largely fallen into desuetude. How far this decline is attributable, as Dr. Goodall thinks it is to a great extent, to the lack of convenient methods of application is another matter. Certainly, however, the results published in a preliminary communication by Dr. Goodall and his co-worker, Mr. Mackenzie Wallis, Lecturer on Chemical Physiology in University College, Cardiff, are encouraging. Dr. Goodall deals with the mental and bodily changes observed in 108 subjects of insanity who were treated by electrical baths with alternating and sinusoidal currents; a course consisting of eighteen to twenty baths, each of twenty minutes' duration. The cases were mostly under 30 years of age, and comprised many recoverable forms of insanity, though they were preponderatingly cases of melancholia. Out of 108 cases, 62, or 57.4 per cent., either recovered or showed marked mental improvement; whereas out of 16 control cases, belonging to the same class as the others, receiving the same diet, but treated merely by simple warm baths at the same temperature as the electric baths, only 2, or 12.5 per cent., showed any improvement. The average duration of residence of those who recovered among those treated by electric baths was six and one-third months. It is obvious, Dr. Goodall says, that the number of controls had to be limited, but it cannot be denied that their small number leaves a good deal of room for a chance selection of less favourable cases; indeed, it might be said that the unusually small percentage of cases showing improvement in this class itself suggests that this happened. The percentage of recovery among the electric bath cases, 25.9 per cent., is satisfactory, but it cannot be claimed that there is anything particularly striking in these results, stated baldly as above, and it is, we gather, rather upon the evidences of improvement in the general nutrition of the cases treated by electric baths that Dr. Goodall bases his conviction that it occurred largely in consequence of the baths. The figures given by Dr. Goodall show that of the

[1] *Journal of Mental Science*, April, 1910.

electric bath cases 65, or 60.1 per cent., gained in weight; 8 remained stationary; and in 35, or 32.4 per cent., a loss occurred; whereas of the 16 controls, 10, or 62.5 per cent., gained; 1 remained stationary and 5, or 31.2 per cent., lost weight. At first sight these figures seem to show the more successful issue in the controls; but Dr. Goodall says that if only those who gained 5 lb. or over are counted, these form only 30 per cent. in the simple bath, as against 62 per cent. in the electric bath cases. Unfortunately Dr. Goodall's tables are not complete enough to furnish material for accurate comparison between the two classes. Doubtless future accounts of the results of this treatment will contain this needed information. All that can be drawn with certainty from the results so far published is that the great majority of those which did well gained in weight. In the second part of the paper Mr. Mackenzie Wallis gives an interesting historical sketch of the methods of estimating the output of creatinine and the views of the various investigators as to its source and alterations in pathological conditions. He then describes the results obtained by him, using Folin's colorimetric method, in 14 of Dr. Goodall's patients, 7 of whom were taking electric baths and 7 simple warm baths. His conclusions are as follow "(1) The excretion of creatinine in the insane is in general subnormal. (2) Electric bath treatment, using the sinusoidal current, tends to increase the creatinine in the urine. (3) Treatment with warm baths without the current has very little, if any, influence on the creatinine excreted. (4) Variations in volume of the urine excreted and the great proneness to bacterial decomposition seem to be characteristic of the insane." The results, he says, "seem to support Schaffer's view that creatinine is an index of a special process of metabolism taking place in the muscles, and that the muscular efficiency depends on it. Exposure of the muscles to a sinusoidal current probably intensifies the process, increasing the general tone of the muscles, and consequently the creatinine metabolism. The effect of electric baths on these patients affords considerable support to this view, not only from the aspect of creatinine metabolism, but also from the clinical observations." As Mr. Wallis does not mention the mental changes, if any, undergone by the 14 patients studied by him, the phrase "clinical observations" possibly refers to body-weights, of which particulars are given in each case before and after the baths. From these we see that of the electric bath cases 5 gained, 1 remained unchanged, and 1 lost weight, the simple bath cases giving numerically exactly the same results. Also the total amount gained in the two groups of 5 patients—electric and simple bath cases—amounted to 5.6 kg. The only difference between the two classes is that one warm-bath case lost 1.3 kg., whereas one electric bath case lost 0.3 kg. It is obvious that the whole matter requires further investigation.

THE HARVARD CANCER COMMISSION.

THROUGH the beneficence of the late Mrs. Caroline Brewer Croft the sum of £20,000 was left to the University of Harvard to be applied to the investigation of cancer. A commission was formed to carry out the wishes of the testatrix, and has been at work for ten years. During that time the Commission has issued five biennial reports, which have been mainly devoted to a consideration of the etiology and nature of the disease. The work of the Commission has also included, to a certain extent, special forms of treatment, such as the action of the x rays, and in the last report the principle of vaccination was touched upon. The work has hitherto been conducted to a large extent in the laboratory; it has included research work in animals, and the study of cancer from the biological, zoological, and embryological standpoints. Now it is proposed to devote attention to the clinical side of the question. According to the *Boston Medical and Surgical Journal*, to which we are indebted for the information here given, recent events in New York, Boston, and elsewhere have emphasized the importance of testing thoroughly the question of the vaccine treatment of cancer, and great interest has been aroused in regard to the efficiency of the ascitic fluid from a case of spontaneous cure of cancer recently reported. For this purpose the Commission desired to have under its observation a small number of incurable cases of cancer in a hospital situated within the grounds of the medical school and in close proximity to the workers engaged in cancer research in the laboratory. "The idea," says our contemporary, "of a hospital for incurable cases of cancer, presided over by laboratory men and under the exclusive control of the Commission, is one, it seems, that has not hitherto been attempted, and it is hoped that their point of view, which will necessarily be quite different from that of the practising physician or surgeon, may lead to new observations and new interpretations of some of the phenomena attending the generalization of cancer." At a public meeting held on April 13th, Dr. J. C. Warren, who was in the chair, explained the work of the Commission and its desire to build a hospital containing 24 beds for incurable cases of the disease. He stated that the object which the Commission had in view was to study and possibly help such cases without operative interference. If this seemed to be necessary, the patients could be transferred to one of the numerous hospitals now in course of erection near the Harvard Medical School. Professor W. T. Councilman presented an analysis of the statistics showing the increase of cancer during the past fifty years. A study of the facts led him to the conclusion that, making allowance for the absence of epidemics, and other factors favouring the preservation of life to the cancer age, there was still a distinct increase of the disease during the last half-century.

ANTIMENINGITIS SERUM.

THE Rockefeller Institute for Medical Research, which has been supplying the antimeningitis serum gratis for several years, has announced that it may discontinue, at any time after the expiration of the next six months, its preparation and distribution on a large scale. The consensus of medical opinion, based on the employment of the antimeningitis serum in widely separated epidemics of meningitis, is to the effect that it is of undoubted value in reducing the mortality and preventing the severe consequences of the disease. The serum is without effect in any other form of meningitis than that caused by *Diplococcus intracellularis* (Weichselbaum), and its favourable action is most pronounced when it is applied early in the course of the disease. Hence it is desirable that State and municipal laboratories, engaged in the preparation of diphtheria antitoxin and allied products, should undertake the preparation of the serum and provide means of controlling the bacteriological diagnosis of meningitis, as they now do of diphtheria and some other diseases. Unless the bacteriological diagnosis is controlled by competent authorities, the serum will, undoubtedly, be applied in some cases of meningitis due to causes which are not subject to its action, and not a few cases of epidemic meningitis will be deprived of the benefits of its use. The serum is administered by being injected into the spinal canal by means of

lumbar puncture, an operation also required to secure the fluid for the bacteriological diagnosis; several separate injections of the serum are usually required in treating a given case. The effective employment of the serum is likely, therefore, to be restricted on account of the experience and skill required in its administration and the high cost of the commercial product, unless the preparation and distribution are undertaken by State and municipal authorities.

LORD LISTER'S WORK ON LACTIC FERMENTATION.

IN view of the current craze for the consumption of sour milk, which in fashionable health resorts is apparently regarded as a veritable *elixir vitae*, considerable interest pertains to the early investigations into the nature of the lactic fermentation. Among these, those of Lord Lister will always hold an honourable place. His *Collected Papers*[1] contain the articles in which he narrated the series of experiments by which he satisfied himself that the organism described by him under the title of *Bacterium lactis* is the true cause of the characteristic souring and coagulation of milk in its typical uncomplicated form. He found that this organism, though in dairies it seems to be universal, is very rare in other places. He describes it as a motionless bacterium, occurring commonly in pairs or in chains of three or more individuals, oval in form, and often showing a line indicating transverse segmentation. Its size was variable, but full-grown specimens averaged $\frac{1}{20000}$ in in diameter. As illustrating at once the rarity of the *Bacterium lactis* and the extreme susceptibility of milk to infection by various organisms, Lord Lister adduced the following experiment: Twenty-four glasses, sterilized by heat, were charged with milk drawn under proper precautions from a single cow, and immediately covered with sterilized caps. Manifest changes occurred in every one. Some had a golden-yellow aspect, some a green tint, many were studded with brilliant red spots, either alone or associated with other colours. But in none appeared the signs of the true lactic fermentation. These rare appearances Lister attributes to the exclusion of ferments (for example, the lactic, the butyric, etc.) which, when present, inhibit other growths. The lactic ferment proved to be as rare in ordinary water as in air, and inoculation of specimens of pure milk with, say, $\frac{1}{100}$ minim tap water was found to produce in different cases strikingly different results, as evidenced by the various colours and odours produced. From the fact that in certain cases these inoculations produced no effect, Lord Lister inferred that the fermentative material could not be diffused throughout the water, but must exist in the form of insoluble particles, that is, as micro-organisms of divers kinds. The fermentative changes were, in fact, invariably found to be associated with bacteria of one sort or another. By an ingenious device Lord Lister diluted milk containing a pure culture of the *Bacterium lactis* so that one portion contained on the average a single bacterium, a second two, and a third four bacteria to each $\frac{1}{50}$ minim. Of sixteen specimens of sterilized milk ten were inoculated with $\frac{1}{50}$ minim of the first, five with a similar drop of the second, and the remaining one with the third dilution. The result was, that of the ten specimens inoculated with a drop calculated to contain a single bacterium, five soured and five remained unchanged. The milk supposed to have been inoculated with two and four bacteria respectively coagulated in every case and within a somewhat shorter time. A clearer demonstration of the relation of the *Bacterium lactis* to the lactic fermentation could hardly be desired. But indeed the whole investigation, as narrated by Lord Lister, is a model of inductive method, apart from the topical interest of the subject with which it is concerned. It was communicated to the Pathological Society of London in 1877.

[1] *The Collected Papers of Joseph, Baron Lister*, vol. i, pp. 353-385.

A SKY-SCRAPER HOSPITAL.

THE New York Post-graduate Medical School has begun the erection of a new building containing about four hundred beds; it is to be built on the site adjoining the present quarters, which will be rearranged and the nurses' home rebuilt. The new hospital building will contain eight operating rooms, each 18 ft. by 20 ft. and in addition, well equipped laboratories for research work; it is intended to give special attention to the investigation and teaching of tropical diseases. The building is to be in part of twelve and in part of seven stories; the higher part of the building or tower will have rooms for fifty private patients, and on its roof will be a pavilion for open-air treatment. There will also be, on three floors, a loggia open to the street front and to the rear, where beds can be kept permanently with full exposure to the air. The main building, which, as has been said, is to be seven stories high, will have three long balconies to the eastward, and the whole of the top of this part of the building will be arranged as a roof garden; the hospital will, therefore, have ample means of giving patients abundance of fresh air.

THE ROYAL COMMISSION ON UNIVERSITY EDUCATION IN LONDON.

THE first report of the Royal Commission on University Education in London, which was issued on Wednesday last, consists merely of a paragraph submitting minutes of the evidence taken down to April 21st last. The first witness called was Mr. R. Blair, Education Officer of the London County Council. The other witnesses were Mr. Sidney Webb, a member of the Senate of the University of London; Sir A. W. Rücker, late Principal of the University of London; the Master of the Rolls, who has all through the agitation of the last thirty years taken a great interest in the affairs of the University, of which he is a graduate; the Rev. A. C. Headlam, D.D., Principal of King's College, London; Dr. William Garnett, educational adviser to the London County Council; Lord Aldenham, President of the London Institution; the Bishop of Exeter, formerly Principal of King's College and Vice-Chancellor of the University of London; Mr. T. Gregory Foster, Provost of University College and a member of the Senate of the University; Lord Reay, Chairman of the College Committee of University College and a member of the Senate of the University; Sir William Ramsay, Professor of Chemistry in University College; Sir H. E. Roscoe, a member of the Senate and formerly Vice-Chancellor of the University; and Dr. J. K. Fowler, late Dean of the Faculty of Medicine of the University. In the appendices are given memorandums handed in by Mr. Blair, Dr. Garnett, Lord Aldenham, and Mr. Gregory Foster.

THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS.

SINCE the note on the approaching election to the Council of the Royal College of Surgeons of England published last week no more applications have been

received by the Secretary of the College, and the last day on which such applications could be admitted, June 10th, is past. Hence there will be no provincial Fellow to replace Mr. Wright. Mr. Lockwood, who has only held office for two years, certainly deserves re-election for a full term. Of the new candidates, Mr. Bilton Pollard is of the oldest standing as a Fellow (June, 1881); as a Member (November, 1879) he is junior to Mr. C. A. Ballance (July, 1879), whose Fellowship, on the other hand, dates from June, 1882. Both are distinguished surgeons. The third in order is Mr. Ernest Lane, a Fellow since 1882 (Member, 1880); and, lastly, the fourth is Mr. J. Bland-Sutton, a Fellow since 1884 (Member, 1882). The professional merits of these four new candidates are known to all of us. Mr. Bilton Pollard is Surgeon to University College Hospital, at present represented by only one member, Mr. Godlee. Mr. Ballance, C.V.O., represents St. Thomas's Hospital, which has lost Mr. Clutton as a Member on the Council. Mr. Ernest Lane is Surgeon to St. Mary's, and Mr. Bland-Sutton to the Middlesex. The successful candidate who will come out third on the poll will be substitute member for Mr. Wright, elected in 1906, and will therefore hold his seat on the Council until 1914.

AT the annual meeting of the Metropolitan Counties Branch, to be held on Thursday, June 23rd, at 4.30 p.m., in the Council Chamber, at 429, Strand, Dr. Lauriston Shaw, the new President of the Branch, will deliver his Presidential Address, taking as his subject, "The Aim of a United Medical Profession and the Handicap of the Trade-union Bogey."

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

Payments to Medical Men under the Midwives Act.—Mr. Henry Walker asked, with reference to the doctor called in on an emergency under the statutory rules, in pursuance of the Midwives Act, and to the fact that payment was now being made to him out of the rates in some places under the Public Health Act, 1875, and in others under the Poor Law Amendment Act, 1848, whether, in the absence of any application for consent by or on behalf of the patient or her husband, such a payment out of the rates to the doctor, whether under the one Act or the other, was treated as parochial relief; whether, as a matter of fact, the patient and her husband in respect of attendance on the former of whom the doctor was thus paid under the Poor Law Amendment Act, 1848, were in some unions, but not in others, entered and classed as paupers in receipt of medical relief; whether, when the payment was made under the Public Health Act, 1875, the patient and her husband were everywhere spared from any demoralising contact with the Poor Law, and were not subjected to visits from the relieving officer; what authority in each locality decided whether the payment out of the rates to the doctor should be made under the one Act or the other; what authority determined whether the patient and her husband in those cases in which no application or consent was made by them or on their behalf should or should not be regarded as in receipt of parochial relief and be dealt with as paupers; and whether, in view of the diversity of opinion and of action among local authorities in this matter, the President of the Local Government Board would issue a circular clearing up the legal position. Mr. Burns replied that he had stated on April 28th last that there were two or three cases in which payments of the kind referred to had been made under Section 133 of the Public Health Act, 1875. Such payments would not be parochial relief. Some boards of guardians had, he believed, made similar payments under Section 2 of the Poor Law Amendment Act, 1848, but he had no information as to their practice in the matter. It did not seem to him to be necessary to adopt the course suggested in the last part of the question. He might remind his hon. friend that a bill had been introduced on behalf of the Government, in another place, which contained a provision on this subject, and he could assure him that the points to which he had drawn attention would not be lost sight of.

Mediterranean Fever (Goat's Milk).—Mr. Chancellor asked the Under-Secretary for the Colonies whether it had been decided to appoint a new Mediterranean Fever Commission for the purpose of investigating the manner in which goats became infected, seeing that it was officially stated in evidence before the Royal Commission on Vivisection (Q. 14242) that no goats had been infected by the alleged Malta fever germ, that it did not give rise to any ill health, and that it did not give rise to any fever; and, seeing that, according to official statistics, Malta fever had been practically extinguished from among the British garrison before the order of July 1st, 1906, for the prohibition of goat's milk was issued, what public ends were sought by spending time and public money in prosecuting a research which appeared to have no bearing whatever upon the question of Mediterranean fever. Colonel Seely replied that it had been decided to appoint another Commission for the investigation of the question. The evidence of Sir David Bruce before the Royal Commission on Vivisection, to which allusion was made, was to the effect that the goats, though their blood and milk contained the micrococcus of Malta fever, and they were therefore capable of infecting man with the disease, remained themselves apparently healthy. Such tolerance of disease germs was, the Secretary of State was advised, a common physiological phenomenon. His hon. friend was mistaken as to the statistics of admissions to hospital among the troops for Malta fever. In 1905 there were 643 such admissions; up to July, 1906, when the prohibition of the use of goat's milk was issued, there were 123; for the remainder of the year, 40; for 1907, 11; 1908, 5; 1909, 1; and 1910 to date, 0. As it was not practicable to prohibit the use of goat's milk among the civil population, it remained to investigate the causes of the infection of goats, and, if possible, to remove them.

The Census Bill.—In moving the second reading of this bill on Tuesday, Mr. Burns pointed out that it did not apply to Ireland, for which a separate measure would be introduced. The bill followed generally the lines of the Census Act of 1900. The Local Government Board had been advised by the Registrar-General, who had consulted many learned societies and experts. The Statistical Society and the Society of Medical Officers of Health had thanked the Registrar-General and the Local Government Board for the assistance that would be given them, and the alterations to be made in taking the census had been generally approved. Provision was made for the first time to obtain from each married couple the duration, and number of children, of the marriage. This, it was hoped, would furnish data of high value on certain social problems, such as fertility under various conditions and the extent of infant mortality. The birth-rate had dropped since 1851 from 34 per 1,000 to 26. In the same time the death-rate had been reduced from 23 to 15. The marriage-rate had remained about stationary. Infant mortality, happily, had fallen in the last five years from 145 to 109 per 1,000 in England and Wales, and from 144 to 107 in London. The information they hoped to get by the census would assist in this work of reduction. As regards the most important matter of overcrowding, it had been arranged that the number of rooms occupied by a family in a tenement should be recorded, which was thought a better unit for classification than the number of persons in a

house with five rooms or less, as some of the worst forms of overcrowding were found in houses with six to ten rooms. Clause 6 also provided for the inclusion of large establishments such as hotels, big business places, and institutions. The reports of returns would be simplified, and the preliminary report would be ready sooner, probably in less than three months after the census was taken. He hoped the main report would also be sooner published. By Clause 9 the Registrar-General would be enabled to supply statistical information obtainable from the census reports for the benefit of local authorities. In this way more detailed information would be accessible to public bodies and investigators. He had hoped that a quinquennial census might have been provided in the present bill, but the Treasury would not sanction it. The cost might be from £100,000 to £185,000. It was better in a census to ensure accuracy than enlarge scope. In this country the householder answered the questions; in some foreign countries it was done by an official. He preferred the British method. By enlarging columns 12 to 16 and putting in three or four subheads he hoped for considerable improvement on the previous census. The experts he had met were agreed as to the lines laid down, and he had consulted the Education Department, the Board of Trade, and the Home Office, and he thought as a result the new census would throw more light than ever before on problems of public health and vital statistics. He should like a census of the Empire on the same date or near it, and he was not without hope that it might be made in 1911. Sir Charles Dilke said most of the Dominions now had a quinquennial census, and he advocated a permanent census office as desirable for efficiency and for general statistical work. The bill really ought to have been passed last year, and provision should have been made for an intermediate enumeration every five years and the general census every ten. Mr. Long generally supported these views, and contended that with a regular census department the cost might be lessened, so that a quinquennial census would not cost so much as the Treasury thought. Several speakers afterwards spoke as regards a religious census, and information as to the use of the Welsh and Gaelic languages in different parts of the United Kingdom. The bill was then read a second time without a division and referred to a Committee of the whole House.

The Census (Ireland) Bill was also read a second time and committed, on the motion of Mr. Redmond Barry. On the subject of illiteracy Mr. Birrell admitted that the age of 5 was a very early age at which to stamp any one as illiterate, and he would, therefore, consider whether the age could not be increased in the instructions.

Plumbism in Dockyards.—Mr. Fuller asked whether, in in view of a recent death at Portsmouth, the First Lord would appoint a medical officer who should be, if not a specialist, at least thoroughly conversant with the disease known as plumbism, and give this officer authority to visit the gunwharf shop, to draft men suffering from the incipient or later stages of the disease from this shop to healthier work in the dockyard, and generally to report on all such cases. Dr. Macnamara answered that medical officers were not appointed to dockyards unless they were thoroughly conversant with industrial diseases. Dockyard workmen whose business brought them into contact with lead were periodically examined by the dockyard medical officers for plumbism, etc., and, if considered necessary on medical grounds, they were placed on other work where there was no risk of contracting lead poisoning.

The Care and Control of the Feeble-minded.—Mr. Hicks Beach asked the President of the Local Government Board whether the Government proposed to take any steps to carry out the recommendations of the Royal Commission on the Care and Control of the Feeble-minded. Mr. Churchill said that his right hon. friend had asked him to answer the question. As stated by the Prime Minister, in reply to a question on November 1st last, the Government were fully alive to the importance of this matter, and a draft bill was already in preparation, though legislation this session was, he feared, not practicable.

The Notification of Pulmonary Phthisis in Scotland.—On Monday Mr. Younger asked the Lord Advocate if he could state how many local authorities in Scotland in burghs and counties, respectively, had added pulmonary phthisis to the list of compulsory notifiable diseases under the Infectious Diseases Notification Act, 1889; and how many cases were notified in 1909. The Lord Advocate replied that the Local Government Board had approved the orders of forty-one burghal local authorities and of thirty-three landward local authorities extending the provisions of the Act referred to to pulmonary phthisis; 1,902 cases of phthisis were notified in the year 1909.

Medical Inspection of School Children.—Mr. Ramsay Macdonald asked the President of the Board of Education last week whether it was still the intention of the department to keep as confidential the information derived by the medical officer from the inspection of school children; and if that be so, whether he had considered the impropriety of allowing authorities to appoint as medical inspectors persons who already held the office of public vaccinator. Mr. Runciman answered that the Board remained at present of opinion that it was desirable that these reports should be regarded as confidential. As regards the second part of the question, he must refer the honourable member to the answer he received on March 9th (vide BRITISH MEDICAL JOURNAL, March 19th, p. 718).

Sunday Golf.—During Tuesday's sitting a discussion on Sunday golf arose over a Midland Railway Bill. Mr. Kerr-Smiley objected to the company having power to open the golf links at Portrush on Sundays without the consent of the urban district council. Mr. Illingworth (speaking for the Board of Trade in the absence, through illness, of Mr. Tennant), said the question was an ethical one of much interest, which each individual had to decide for himself. The Board of Trade was neither a censor of morals nor of manners, and so they left the matter to the good sense of the House. After some other speeches the amendment to require the consent of the local authority was carried, amid cheers and laughter, by 94 to 59. The bill was then read a third time, and the House adjourned.

Private Members' Bills had their first regular opportunity on Friday last, June 10th, and very little came of it. Two bills which had passed the Committee stage in the Standing Committee came on first for consideration. The first of these, the Police Superannuation (Scotland) Bill, unexpectedly evoked considerable criticism on the part of Lord Hugh Cecil, Sir F. Banbury, and others; and, instead of passing in a short time, was under discussion for some three hours, when it was read a third time without a division. The Norwich Charities (No. 2) Bill came on next, and an unexpected amount of interest was also shown in its provisions, and a division was taken on the schedule before the bill was read a third time and passed at 10 minutes to 5. This left only a few minutes for the Ecclesiastical Disorders Bill, which would under ordinary circumstances have occupied all the afternoon, but which had lost its chance in consequence of the tactics of its opponents in using the other two bills to exhaust the time. The bill was moved in a few words by Mr. McArthur, and then talked out. The adjourned debate was put down for June 24th, the next day reserved for private measures.

SCIENCE NOTES.

IT is well known to all who take any interest in radio-activity that the alpha rays have much less power of penetration than the beta rays, and these again less than the gamma rays. The rays are stopped or absorbed by matter in proportion to its density; the relation is not quite exact, but the statement is approximately true. The alpha rays are absorbed by a thin sheet of paper, the beta will pass through a layer of tin foil, the gamma through half an inch of steel. All three classes of rays are themselves complex, that is to say, each comprises several different types. Mme. Curie showed that the beta rays, from some radio-active substances at least, are deflected in a magnetic field. To the last meeting of the Royal Society, Professor Rutherford communicated a paper by Mr. J. A. Gray, B.Sc., in which an attempt had been made to utilize this property to detect sets of homogeneous beta rays by the photographic method. Radium emanation was placed in a very narrow thin-walled tube, drawn out from capillary tubing so thin that the alpha rays from the emanation escaped. Enough black paper was placed over the tube to absorb the alpha rays and to protect the photographic film from phosphorescence caused by the alpha rays. The beta rays from the active deposit had thus to pass through very little absorbing material. If the beta rays from a simple radio-active substance are emitted at an identical speed, it would be reasonable to expect to obtain evidence of such, even if beta rays change slightly in velocity, in passing through matter. Although several photographs were taken, no sign was found of sets of homogeneous beta rays from radium B and radium C. Experiments were then tried with radium E, which gives beta rays which are very nearly absorbed according to an exponential law; if, as many writers have assumed, absorption according to an exponential law signifies homogeneous beta rays, these rays should be practically homogeneous. It was found, however, that the velocities of the rays were distributed over a wide range. Mr. Gray summarized the results of his experiments as follows: (1) Beta rays which are absorbed according to an exponential law are not homogeneous; (2) beta rays must fall in velocity in passing through matter, for, if not, the absorption coefficient of any mixture of rays must decrease as the rays pass through matter.

The first step in the series of changes which radium spontaneously undergoes is the liberation of radium emanations. The expulsion of the emanation is accompanied by the simultaneous liberation of an atom of helium. The emanation then undergoes a further series of changes into radium A, B, C, and so on. The emanation does not accumulate beyond a certain point, because it is constantly changing, so that, soon, as much emanation will be changing as is formed, and the quantity present in a mineral will therefore be constant. This is the condition to which the term "radio-active equilibrium" is applied. It is otherwise with the helium; is not radio-active, and, so far as is known, undergoes no further change; it is in fact the rival or equal of argon, as the most inactive of elements: it exists free as single atoms and does not combine with other elements. When a mineral in which it is formed or heated is dissolved the helium is evolved and it cannot again be absorbed by the mineral or any other known substance. The helium formed during geological time by the disintegration of the radio-active elements in the mass of the mineral, which is often of a glassy nature, being unable to escape, slowly accumulates, and the amount liberated when the mineral is heated or dissolved can be measured. These facts have been utilized by the Hon. R J. Strutt, F.R.S., Professor of Physics at the Imperial College of Science, to estimate the age of rocks, and in a paper read to the Royal Society on June 9th he gave the results of further determinations of the ratio of helium to radio-active matter in minerals, chiefly those occurring in Archaean rocks. Very large relative quantities of helium were found, in one instance (a sphene from Renfrew Co., Ontario), indicating an antiquity of at least 700 million years even if no helium has escaped. Mr. Strutt also discussed the unique case of beryl, which, as he had previously shown, contains much helium, with hardly any radio-active matter. He put forward an explanation, suggested by Dr. Boltwood: It is supposed that beryl, in crystallizing, has separated from the parent magma one of the longer-lived products of the uranium or thorium series—such, for example, as radium, ionium, or radio-thorium, without the parent element. This product would decay, leaving no trace of its presence, except the helium generated. Mr. Strutt gave reasons for believing that nothing of this kind had happened in the cases relied on for measuring time.

THE KING'S HOUSEHOLD.

MEDICAL APPOINTMENTS.

THE KING has been pleased to make the following appointments:

To be Physicians in Ordinary to His Majesty: Sir Francis Henry Laking, Bart, G.C.V.O., K.C.B., M.D. Sir James Reid, Bart., G.C.V.O., K.C.B., M.D. Sir Richard Douglas Powell, Bart., K.C.V.O., M.D.

To be Physicians Extraordinary to His Majesty: Sir Thomas Barlow, Bart., K.C.V.O., M.D. Sir William Henry Allchin, M.D. Bertrand Dawson, Esq., M.D. Sir Alan Reeve Manby, M.V.O., M.D.

To be Physician to His Majesty's Household: Sir Robert William Burnet, M.D.

To be Sergeant-Surgeons to His Majesty: Sir Frederick Treves, Bart., G.C.V.O., C.B. Sir Richard Havelock Charles, K.C.V.O., F.R.C.S.I.

To be Honorary Surgeons in Ordinary to His Majesty: Rickman John Godlee, F.R.C.S., M.S. Anthony Alfred Bowlby, C.M.G., F.R.C.S. Sir William Watson Cheyne, Bart., C.B., F.R.S.

To be Surgeon to His Majesty's Household: Hugh Mallinson Rigby, Esq., F.R.C.S.

To be Surgeon Apothecary to His Majesty and to His Majesty's Household: Sir Francis Henry Laking, Bart., G.C.V.O., K.C.B., M.D.

To be Surgeon-Oculist to His Majesty: Sir George Anderson Critchett, Bart., C.V.O., F.R.C.S.Ed.

To be Laryngologist to His Majesty's Household: Milsom Rees, Esq., F.R.C.S.Ed.

To be Bacteriologist to His Majesty's Household: Harold Robert Dacre Spitta, Esq., M.D.

To be Dental Surgeon to His Majesty's Household: Charles Edwin Truman, Esq., M.R.C.S.

To be Anaesthetist to His Majesty: Frederic William Hewitt, Esq., M.V.O., M.D.

To be Chemist and Druggist to His Majesty: Mr. Peter Wyatt Squire.

To be Surgeons-Apothecary to His Majesty's Household at Windsor: William Fairbank, Esq., M.R.C.S. William A. Ellison, Esq., M.V.O., M.D.

To be Surgeon-Apothecary to His Majesty's Household at Sandringham: Sir Alan Reeve Manby, M.V.O., M.D.

To be Surgeon-Apothecary to His Majesty's Household at Balmoral: Alexander Hendry, Esq., M.D.

To be Honorary Physicians in Ordinary to His Majesty in Scotland: Sir Thomas Richard Fraser, M.D. David W. Finlay, Esq., M.D.

To be Honorary Surgeons to His Majesty in Scotland: Alexander Ogston, Esq., M.D. Sir William Macewen, F.R.S., M.D.

To be Honorary Surgeon-Oculist to His Majesty in Scotland: George Andreas Berry, Esq., M.B.

To be Surgeon-Apothecary to His Majesty's Household at Holyrood Palace: William Black Alexander, Esq.

To be Honorary Physicians in Ordinary to His Majesty in Ireland: Sir Francis Cruise, M.D. James Little, Esq., M.D.

To be Honorary Surgeons to His Majesty in Ireland: Sir Charles Bent Ball, M.D. Sir Thomas Myles, M.D.

To be Honorary Surgeon-Oculist to His Majesty in Ireland: Charles Edward Fitzgerald, Esq., M.D.

MOTOR CARS FOR MEDICAL MEN.

STARTING.

MOTOPHILE.—The cars mentioned are low in price and we know nothing against them, nor have we any intimate knowledge of them. But it must be remembered that cars of the less well-known makes fetch a very small amount if it is necessary to sell them again, and we should advise a somewhat larger initial expenditure on one of those which have a well-established reputation. It is fairly easy to start on a good modern magneto; but it generally involves vigorous rotation of the starting handle, and there are now many which are so made as to use an accumulator current to excite the coils of the magneto for starting only. This ensures an easy start.

AN AMERICAN CAR.

DOUBTFUL.—The cars mentioned are American, and have some good features in simplicity of design. Though they may look somewhat flimsy in build, the agents have not been afraid to send recently a whole fleet of them for a very rough journey over ill-kept lanes and over the downs where there are only tracks, and they came satisfactorily through the ordeal.

Reports of Societies.

THE ROYAL SOCIETY.

Thursday, June 2nd, 1910.

Sir ARCHIBALD GEIKIE, K.C.B., President, in the Chair.

Influence of Bacterial Endotoxins on Phagocytosis.

A PRELIMINARY report on this subject was presented by Messrs. LEONARD S. DUDGEON, P. N. PANTON, and H. A. F. WILSON. Extracts were prepared from most of the common pathogenic organisms by grinding them up in the presence of sterile sand or glass and adding a definite amount of sterile salt solution; this was then centrifugalized at high speed, and the final supernatant layer employed as the endotoxin. The experiments were limited, and failed to indicate that there was any direct action on the leucocytes, as in no instance was there any appreciable variance from the control experiments. As to the action of the endotoxic substance on the serum, the following facts were evident as a result of the experiments: (1) That the endotoxic substance was capable of exerting a specific action on the serum in a large proportion of cases. (2) That the endotoxic substance was unaffected by heat. (3) That dilution of the endotoxic substance correspondingly diminished its toxic effect upon the serum, but in a few instances, when diluted, it appeared to play the part of "stimulin," so that the degree of phagocytosis was far greater than in the control experiments.

The Mesocoelic Recess.

Professor ARTHUR DENDY, F.R.S., and Mr. G. E. NICHOLLS, B.Sc., contributed a paper on the occurrence of a "mesocoelic recess" in the human brain and its relation to the subcommissural organ of lower vertebrates, with special reference to the distribution of Reissner's fibre in the vertebrate series and its possible function. They had found in the adult human brain a small cavity, lined by a characteristic columnar epithelium, embedded in the roof of the iter at the back of the posterior commissure, and in close relation to this another irregular cavity, which apparently represents the remains of a communication with the lumen of the iter. In the five-months fetus this communication is still widely open, and the cavity is evidently part of a structure lying beneath the posterior commissure, and corresponding to the so-called "ependymal groove" of lower vertebrates. For this structure they proposed the more distinctive term "subcommissural organ." It consists, in the human fetus, of two bands of high columnar epithelium with deeply situated nuclei, invaginated posteriorly into the roof of the iter to form a "mesocoelic recess," as in certain lower vertebrates. In the adult man it is in a vestigial condition, being represented by the mesocoelic recess alone. In the chimpanzee the subcommissural organ is better developed than in man and the mesocoelic recess still opens into the lumen of the iter in the adult, the recess itself having a diameter nearly ten times as great as in the human subject. In the cat and mouse the subcommissural organ is very well developed, and there is also a Reissner's fibre. The latter, in the cat (and probably also in the mouse), breaks up into slender branches which are connected with the modified epithelium of the subcommissural organ exactly as in the lower vertebrates (for example, lamprey, frog). Considering this well-defined relation of Reissner's fibre to the subcommissural organ it was thought highly improbable that in man, where the subcommissural organ is reduced to a mere vestige altogether shut off from the remainder of the cavity of the brain, a Reissner's fibre exists. It was maintained that these observations supported the view already put forward that Reissner's fibre has a mechanical and not a nervous function, and that in connexion with the subcommissural organ it forms an apparatus for automatically regulating (in lower types) the flexure of the vertebral column; the authors supposed that this function had become obsolete with the assumption of the erect position and the loss of the tail.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

Tuesday, June 7th, 1910.

Mr. R. J. GODLEE, President, in the Chair.

Discussion on the Treatment of Syphilis.

MR. ERNEST LANE, in opening a discussion on the treatment of syphilis, said he believed that although the numbers of patients attending the Lock hospitals had increased considerably during the last ten years, the actual decrease in prevalence observed in the services was also to be found in civil life. Good treatment was the best prophylactic, and early treatment had been freed from all reproach by the means now available for diagnostic certainty. In treatment he had no royal routine, but selected a method to suit the case. Dealing first with injection methods, upon which he relied whenever confronted with any emergency, he said that calomel cream was the most potent means of treatment at our disposal. The average dose was $\frac{3}{4}$ grain suspended in sterile oil; twelve injections at intervals of a week should be given. The disadvantages were the occurrence of pain, abscess, pulmonary embolism, and acute mercurialism; of these, only the first was at all common, but it was enough, nevertheless, to lead him to prefer grey oil as a routine agent, reserving the calomel for conditions demanding instant response. Of the soluble preparations of mercury he had little to say, finding that the inconvenience and expense of frequent injections put this method out of court in practice. Inunction, whatever its merits, was repugnant to most patients. As regards the duration of treatment, he prescribed a minimum period of five years. In the case of those whose occupation involved severe stresses he advised an extension to seven years, believing that only by this means could the possibility of late affections of the higher nerve centres be certainly averted. Capacity to transmit disappeared long before immunity to nerve lesions was established. Treatment was not, of course, continuous over the whole period, but should intermit, with intervals of progressive length. Of iodipin he spoke with but faint praise, and he reiterated the warning against the arylarsonates published in these columns a few months ago.

Dr. FLEMING dealt with the laboratory aspect of diagnosis, describing the chinese-ink method of demonstrating the *Spirochaeta pallida*, and giving statistics of his method of serum diagnosis. Whilst a positive result was reliable in primary syphilis, 30 to 40 per cent. gave negative; in secondary, tertiary, congenital, and parasyphilis the test was quite reliable. Energetic treatment destroyed the reaction, but if stopped too early a positive result could again be obtained. A negative result, confirmed after some months, might be taken as evidence of "cure." So far as his present indications went, he found that the injection of grey oil was most effective, and he was able to say that after two years of "pills," the reaction could still be obtained.

Major FRENCH supported his well-known views as to the pre-eminent value of inunction. He thought there was no evidence that the arsenic preparations ensured the patient against relapse. He advocated social legislation for the control of the disease.

Captain HARRISON referred to the improved statistics as to the incidence of venereal disease among troops in India which was the outcome of the preventive efforts of individual medical officers even when working without the support, if not with the hostility, of civilian opinion. He believed in the superiority of calomel injections, but had found three injections as much as could be given; after these three preliminary doses, grey oil was used for further treatment. He had found Wassermann's original method most reliable. It had proved very useful to employ it in a roughly quantitative manner.

Mr. MCDONAGH advised the excision of the chancre, and indicated other details of the practice he had followed on the Continent.

This discussion was adjourned to June 14th.

CLINICAL SECTION.

Friday, June 10th, 1910.

Mr. A. PEARCE GOULD, President, in the Chair.

THE following were among the exhibits:—Mr. R. C. ELMSLIE: Three cases of enlargement of the tubercle of the

tibia (Schlatter's disease); and a case of fracture of the humerus at the site of an innocent cyst. The radiogram showed that the shaft of the humerus was expanded. This was thought to be an endosteal sarcoma. An exploratory operation was performed, a cyst was found, and the interior was scraped. Microscopically, sections showed spicules of bone surrounded by osteoclasts and large intervening areas of young fibrous tissue—exactly the appearances which are found in fibrous osteitis. The arm was now strong and well, the humerus was still expanded at the site of the cyst, and a radiogram showed the presence of a cystic space with, however, sclerosis of the surrounding bone. Dr. H. D. ROLLESTON: A case of jaundice with areas of unpigmented skin. Dr. PARKES WEBER suggested that the relatively unpigmented areas were spots of latent leucodermia. Dr. F. J. POYNTON and Mr. WILFRED TROTTER: A case of cardiolysis. Mr. J. P. LOCKHART MUMMERY: A case of hyperplastic tuberculosis of the pelvic colon. Mr. CYRIL NITCH: Congenital hairy mole. Dr. WILFRED HARRIS: Trigeminal neuralgia of left first and second divisions treated by injections of alcohol. Dr. S. A. CLARKE and Dr. A. F. HERTZ: A case of phlegmonous gastritis, in which a cast of the stomach was vomited. Dr. R. H. HODGSON: A case of pulmonary phthisis with large cavity treated with ether.

EDINBURGH OBSTETRICAL SOCIETY.

Wednesday, June 8th, 1910.

Dr. F. W. N. HAULTAIN, President, in the Chair.

Vomiting After Anaesthesia.

DR J. W. KEAY, in a paper on the treatment of vomiting following chloroform anaesthesia, said that he regarded vomiting as partly nervous and partly gastric in origin, though in any individual case the central or the local factor might predominate. The sickness that occurred in nervous patients after a short anaesthesia was not serious, and the excessive retching was stopped by an enema of potassium bromide and chloral. In more prolonged operations the general sickness was commonly more severe. During the administration of the anaesthetic, gastric irritation was produced by the swallowing of chloroform-laden saliva. The stomach reacted by secreting large quantities of acid, and the vomited matter was often sufficiently acid to produce excoriation of the lips and cheek. The treatment was to administer large draughts of warm sodium bicarbonate solution, and apply counter-irritation to the epigastrium. At the same time the patient should be placed on the right side to encourage the escape of the gastric contents into the duodenum. Hydrocyanic acid and bismuth were useful, while coffee, alcohol, and ice were harmful. Chloretone was sometimes of value, but he had never obtained any benefit from the administration of cocaine. The serious cases showed distension of the intestine, which pressed on the irritated stomach. Reverse peristalsis might ensue and lead to regurgitant vomiting. If symptoms of acute acetonaemia were noted, rectal salines, massage of the abdomen, turpentine enemata, castor oil, or magnesium sulphate by the mouth, with brandy if the strength was failing, were useful; and, in addition, adrenalin 3 minims of a 1 in 1,000 solution three times a day by the mouth to contract the blood vessels of the stomach and stop oozing, and to stimulate peristalsis. No certain method of prophylaxis was known; much depended on the mode of preparation of the patient and the efficiency of the anaesthetist. Dr. FERGUSON thought chloroform vomiting was undoubtedly diminished if the patient was carefully prepared and strychnine administered for a day or two beforehand. He was in the habit of pouring saline solution into the peritoneal cavity in almost every abdominal section. Dr. LACKIE had learnt that blistering over the vagus nerve in the neck was often done in the East for chloroform vomiting. The PRESIDENT said that post-operative vomiting fell under one of three headings—chloroform, intestinal paresis, or peritonitis. In preparation for chloroform anaesthesia he made no change in the patient's diet on the day before operation. If much sickness occurred he administered copious draughts of water containing soda, and withheld food. Paresis and peritonitis were difficult to distinguish by clinical signs, but in the former the distension of the intestine was usually more rapid.

Life-History of Fibroids.

The PRESIDENT, in a paper on some practical points in the life-history of uterine fibromyomata, said this was still a profound mystery, but the fact that they did not in general develop before puberty or after the menopause pointed to a possible ovarian influence. They occurred with equal frequency in married and single. Many said that they were the cause of sterility, others that sterility was a stimulus to their growth and development. In over 400 cases 39 per cent. were in single women; among the married women, 42 per cent. were childless, and of those who had children 40 per cent. had only one, hence fertility was much impaired. During pregnancy fibromyomata increase in size, and as a rule they remain bigger after its termination. This increase in size often led to symptoms, and was followed by sterility. The main characteristic of these tumours was their tendency to degeneration. Such occurred in 34 per cent. of his cases. A malignant change appeared only in 2 out of 415 cases. Some observers gave higher figures, but their statistics were probably based on microscopic evidence which could not distinguish between groups of embryonic cells and sarcomatous cells. Phlebitis sometimes occurred in the veins lying around the tumour, and spread to the lower limb. In his first 3 cases he had delayed the operation, and one died of embolism. In 11 cases he had operated at once with no untoward result. Post-operative phlebitis had merely resulted in a delay in convalescence. The menopause might be delayed to 55 or 60, or even over. After the menopause there was a tendency to quiescence and shrinkage. He had operated on only 6 post-climacteric fibroids, of which 1 was calcareous, 1 sarcomatous, 1 cystic, 2 cervical with pressure symptoms, and 1 had a twisted pedicle. In 7 he had operated for post-climacteric haemorrhage. Hence only 3 per cent. of his operation cases were in patients who had passed the menopause. The *post-mortem* results showed that fibromyomata were present in 20 per cent. of women. Hence they were in the great majority of cases harmless. There was no need for operation if no symptoms existed, but if they did exist operation should be carried out without waiting for the menopause. It was a mistake to subject patients to years of invalidism on the problematical chance of a peaceful old age. Dr. BALLANTYNE was interested to hear that Dr. Haultain did not consider fibroids a penalty for celibacy, nor likely to undergo malignant degeneration. Dr. FERGUSON agreed with nearly every point, but thought that fibroids were the result of sterility due to some other cause. He also operated early in cases of phlebitis. Dr. FORDYCE said that pregnancy and sloughing degeneration at the menopause were grave dangers. Dr. CARMICHAEL said that three of the last four fibroids he had removed were associated with cystic degeneration of the ovaries. That might have a bearing on the question of sterility.

Pelvic Abscess.

Dr. LAMOND LACKIE read a short note on two cases of pelvic abscess. The first was associated with pain over the buttock, where after some weeks the skin became oedematous. After incision, a small quantity of pus escaped. He then pushed dressing forceps through the upper part of the sacro-sciatic notch, and more pus escaped. In the second, the abscess pointed in the triangle of Petit, the cavity extending down into the pelvis. In each case recovery was rapid. In both the cellulitis had spread backwards instead of forwards, as was usual in puerperal cases.

THE festival annually held at Livingstone College, and known as Commemoration Day, took place on Saturday, June 11th, among the visitors being British and foreign delegates to the World Missionary Conference at Edinburgh. In the course of the proceedings, Dr. C. F. Harford, Principal of the College, pointed out that its students did not call themselves medical missionaries, but, thanks to the training they had received, were able to do something towards guarding their own health and relieving the needs of the natives by whom they were surrounded, when cut off from qualified medical assistance. The college training was also useful in that it enabled students to join in the campaign against malarial and other tropical diseases. Testimony to the value of the training supplied at the college was given by Dr. J. H. Cook, a medical missionary of long experience in Uganda, and by several representatives of foreign missionary societies.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

LIVERPOOL.

Association of Physicians of Great Britain and Ireland.

The fourth annual meeting of the Association of Physicians of Great Britain and Ireland was held here on June 2nd and 3rd. The date originally fixed, Thursday and Friday in Whitsun week, was altered on account of the death and funeral of King Edward. Dr. Glynn was elected President, and Dr. S. R. Bradshaw was the local secretary for the meeting. The daily sessions, which took place from 10 to 12 and from 3 to 6, were held in the Medical Institution, and were well attended. Demonstrations were given between 12 and 1.30, partly in the Institution and partly in the Royal Infirmary. The annual dinner took place at the Adelphi Hotel, covers being laid for 105. The meeting was highly successful in every way, and the visitors expressed themselves as much pleased at the arrangements made for them.

Tuberculosis Exhibition.

A tuberculosis exhibition, organized by the National Association for the Prevention of Consumption, was opened by the Lord Mayor of Liverpool on Wednesday last, when Sir James Barr gave a popular lecture on the prevention of consumption. By permission of the Liverpool Health Committee and the Queen Victoria District Nursing Association, members of the female sanitary staff and the district nursing staff, and inspectors of the district sanitary staff, attend daily to explain to visitors the meaning of the exhibits. The methods adopted by the corporation for safeguarding milk are illustrated. On the evening of each of the days for which the exhibition remains open—that is to say, until June 25th—a lecture will be given by a medical man.

MANCHESTER AND DISTRICT.

Consumptives under the Poor Law.

At a conference arranged by the Women Guardians and Local Government Association held in Manchester, Dr. J. R. Hutchinson read a paper dealing with the treatment of phthisis in workhouses. He emphasized the point that poverty and phthisis were intimately associated, and pointed out that Boards of Guardians had power to detain cases of phthisis, as they might be regarded as infectious. Dr. Jane Walker, who read a paper on the management of tuberculosis in schools, said that while there was excellent provision for Poor Law children with tuberculosis, there was practically no provision of country schools for delicate children attending elementary schools in towns. In the discussion Mr. T. C. Horsfall showed the beneficial results that had followed the system in Germany, where through compulsory insurance working men and women suffering from tuberculosis were admitted to a sanatorium, while at the same time ample provision was made for the maintenance of the family at home. Before consumptives came to the Poor Law they were generally beyond cure. In the Chorlton Union the guardians would provide money necessary to maintain the family. Dr. Garrett said that in Chorlton consumptives were treated exactly as private patients, though, as a general rule, the relief given by Boards of Guardians was quite inadequate to keep the wife and family of a phthisical patient in anything like decency. He thought that if guardians would let it be known that they had power to deal in a proper manner with the families of the patients sent to a sanatorium they would receive applications from a large number of working-class people who, under the present conditions, would go on to the last gasp till they were absolutely compelled to go to the workhouse.

Ireland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

Decrease of Tuberculosis in Ireland.

Lady Aberdeen was able to make a most gratifying announcement to a special meeting of the Women's National Health Association held last week. From her previous statement it was known that the death-rate from tuberculosis in Ireland was decreasing, but accurate returns are now to hand and show that the death-rate, which was 2.7 per 1,000 in 1907 and 2.6 in 1908, fell to 2.4 in 1909, the lowest rate recorded during the last thirty-five years. The actual number of deaths in 1909 totalled 10,594, as compared with 11,679 in 1907, a decrease of over a thousand within the two years. It is encouraging also to find that the anti-tuberculosis work of the association has been recognized elsewhere, and that it has been awarded one of the medals of l'Oeuvre d'Enseignement Médical Mutuel for its special efforts in this field. Attempts are now being made by the association to obtain light outdoor employment for patients discharged from sanatoriums, in order to obviate the necessity of an immediate return to city homes on the part of patients who are sufficiently recovered to leave the sanatorium, but are still liable to relapse.

Royal Medical Benevolent Fund of Ireland.

Mr. Robert H. Woods, President of the Royal College of Surgeons in Ireland, presided at the annual meeting of the Royal Medical Benevolent Fund Society, which was held a few days ago in Dublin, and which was largely attended. The annual report stated that the total number of grants recommended since the last distribution amounted to £1,313 2s. 6d., an increase of about £200 as compared with the previous year. In moving the adoption of the report, Dr. Horne, President of the Royal College of Physicians, stated that he found it necessary to emphasize the fact that the society was entirely unsectarian, and that the religious belief of applicants had never been mentioned or considered in any way by any member of the committee when recommending a grant. He was forced to make this statement owing to a letter received from one of their branch secretaries saying that some of the medical men in his district refused to subscribe on the ground that the fund was distributed from a sectarian point of view. Dr. Horne also referred to the fact that a number of orphans and widows had been relieved whose fathers and husbands had never subscribed to the fund. At the conclusion of the meeting Dr. Woods handed the treasurer a cheque for £20 as a donation to the fund.

The annual meeting of the Belfast and Antrim branch was held in the Medical Institute, Belfast, on June 10th. The Lord Mayor of Belfast (Mr. R. J. McMordie, M.A.) occupied the chair. Dr. Fielden, the honorary secretary and treasurer, read the annual report and submitted the statement of accounts. The total subscriptions were £163, being £109 from Belfast and £31 from the country; sixteen subscribers outside the profession gave £14 and the medical students £4 15s. A total of £115 was granted by the Central Council, on the recommendation of the local committee, to various members, widows, and orphans. The adoption of the report was moved by the Lord Mayor, and seconded by Dr. R. J. Purdon. Professor Symington was again elected President, and the following gentlemen were proposed as members of the local committee by Dr. Coates and seconded by Dr. Leslie and elected: Sir William Whitla, Professor J. A. Lindsay, Drs. William Gibson, William M'Lorinan, A. B. Mitchell, R. J. Purdon, Gardner Robb, Cecil Shaw, and J. W. Taylor (all of Belfast), Dr. Gaussen (Dunmurry), Dr. Greenfield (Holywood), Dr. Macarthur (Greyabbey), Dr. St. George (Lisburn), with Dr. Victor G. L. Fielden, honorary secretary and treasurer.

Professor Symington proposed and Sir William Whitla seconded a vote of thanks to the Lord Mayor, which was carried.

IRISH MEDICAL ASSOCIATION.

Judging from their annual report, the Irish Medical Association has just concluded an active and useful year's work, and under the guidance of their newly elected president, Sir Thomas Myles, it seems likely that the influence of the association will be largely felt during the coming twelve months. The membership now amounts to well over 600 medical men, and the income is nearly £1,000. Amongst the numerous matters dealt with during the year 1909 were the position of medical men who are subpoenaed to attend a court of law in private cases, and the inadequacy of the fees payable under the Old Age Pensions Act to medical men for the return of deaths of persons aged 70 years and upwards. The antivaccination campaign in Wexford was also under discussion, and at the annual meeting the following resolution was adopted:

> That, owing to antivaccination literature being circulated throughout Ireland, the Irish Medical Association deem it necessary to record its most marked disapproval of this retrograde movement, and to request the members of the association to combat this attempt to injure the public health of our country by every means in their power, especially by pointing out, on all possible occasions, the fact that vaccination has been proved to be the only thoroughly reliable means of preventing the spread of small-pox.

ANTICONSUMPTION CRUSADE.

The Lurgan Urban Council, at its last meeting, decided to follow the example of other sanitary authorities in joining the Chemical Research Association to enable it to get sputum of suspected phthisical patients examined. Dr. Agnew, Medical Officer of Health, pointed out the necessity of some such step; he also urged the council to unite with others in the erection of a common sanatorium, and in the meantime to send the patients in the early stages to some existing sanatorium for treatment. The discussion of this second project was postponed.

BORSTAL SCHOOL, CLONMEL.

The Clonmel Discharged Prisoners' Aid Society, which is interested in the working of the Clonmel Borstal School, the only Borstal school in Ireland, recently issued its report. These schools, as is well known, have been instituted with the object of rescuing juvenile adult offenders from association with regular criminals, and thereby preventing them, if possible, from recruiting the ranks of habitual offenders. The society has come to the conclusion that if good results are to be obtained the period of detention in the school should be not less than eighteen months. Of 137 youths who have been committed to the Clonmel school, 46 are still inmates, 4 have been transferred to ordinary prisons, and the remainder have been discharged. It is estimated that out of the 87 discharged 50 are doing well. The society hopes later on, if funds permit, to establish agents in the more important centres to look after the boys for whom employment has been found.

PRESENTATION TO SURGEON MCARDLE.

A meeting of students of the St. Cecilia Street School of Medicine was held a few days ago for the purpose of making a presentation to Surgeon McArdle on the occasion of his approaching marriage. The presentation took the form of a large silver rose bowl of Irish design and manufacture. It was presented on behalf of the students by Mr. Henry Barniville, who made a speech suitable to the occasion.

THE COUNTY CORK SANATORIUM FOR CONSUMPTION.

At the meeting of the Conjoint Hospital Board held on June 4th regulations regarding the admission of patients were considered, and the question of the age limit of the patients was the one most discussed. Mr. Creagh said the condition of his gift to the sanatorium was that the patients were to do some work. If the age were not limited, instead of having patients in the sanatorium able to assist the staff, it would be almost a nursery, and new appointments would be required. Preference should be given to breadwinners. It was eventually decided not to admit patients under 14 years of age. The board considered the proposed division of beds between contributing bodies, and it was proposed to divide the 77 beds by giving each of the 28 contributing districts one bed each and allocating the remaining 49 beds in proportion to contributions.

THE ROYAL SANITARY INSTITUTE.

At a sessional meeting of the Royal Sanitary Institute at Trinity College, Dublin, at 8 p.m., on June 24th, discussions will be opened on the water supply of Irish towns by Mr. J. H. H. Swiney, M.Inst.C.E., and on the bacteriological standards of potable water by Professor E. J. McWeeney. On the following day a visit will be paid to the Rathmines Waterworks.

KING EDWARD VII COT.

At a recent meeting at Mercers' Hospital, Dublin, it was decided to found a cot in that institution in memory of the late King. An influential committee has been appointed, and an appeal for funds to carry out the project is being made to the public.

CARLOW ASYLUM.

As a testimony of their high appreciation of the valuable services rendered to the Carlow Asylum by the medical superintendent, Dr. T. A. Greene, the governors of that institution decided at their last meeting to add to his salary a sum of £100. Dr. Greene was appointed superintendent of the asylum about a year ago.

DECLINING BIRTH-RATE.

The report of the Registrar-General for Ireland for the first quarter of 1910 shows a decline in the birth-rate of 0.2 below the average rate for the corresponding quarter for the ten years 1900–9, and a decline of 0.1 below the rate of the first quarter of last year. It is satisfactory to note that the death-rate also has diminished, and is 0.7 below last year's rate.

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

SIR HECTOR C. CAMERON.

SIR HECTOR C. CAMERON, who has held the Chair of Clinical Surgery since 1900, when he succeeded Professor George Buchanan, has intimated his desire to resign that position, and at the last meeting of the University Court his resignation was accepted. We understand that the resignation is to take effect in October. Since the foundation of the chair there have been only two professors of clinical surgery. As the chair is one of those involved in the new scheme for instituting university professorships at the Royal Infirmary, it is not expected that the Court will take any steps to fill up the vacancy till the new scheme is started. This has been the plan adopted with the corresponding Chair of Clinical Medicine, which has not been filled up since the appointment of Professor Gemmell to the Chair of Medicine.

COLONY FOR SANE EPILEPTICS.

The Glasgow Parish Council has received the report of a deputation appointed to visit existing English colonies for sane epileptics in view of the projected colony to be started by the Glasgow Parish Council. The deputation recommended as the most economical plan that the accommodation should be of the colony type, with villas, to hold each 50 patients, of the one-story type used at Monyhull. Central administrative buildings would also be required, and the deputation recommended the erection of large workshops, so that continuous employment might be provided in bad weather when the patients could not be employed out of doors at farm and garden work. It is considered that constant work is the best thing for warding off attacks and conducing to a contented and peaceful state of mind. Though many epileptics are bad workers, the report states that with proper personal

supervision of the individual wants of the patients, better working results can be obtained. It is estimated that the number of epileptics for whom accommodation would be required is about two hundred.

The Caird Cancer Research Laboratory.

Reprints of a number of communications from the Caird Cancer Research Laboratory, Dundee, which appeared in various publications last year, have been issued. Most of them relate to work done by the pathologist of this institution, Dr. Archibald Leitch. They include a note on a method by which a safe report with regard to a tumour can be supplied to an operator within seven minutes of the moment at which slices of it are removed, provided that the distance from the operating room to the laboratory can be covered in two minutes. The slices are placed forthwith in acetone, whence, on arrival in the laboratory, they are placed in hot water for a few seconds, then dipped in gum solution, and frozen by carbon dioxide. The rapidly cut sections are fixed and coloured simultaneously by an acetone solution of "krystallviolet," then cleared with xylol, and examined. Other papers deal with the diagnostic value of peau d'orange in acute mammary cancer, the volume ending with a consideration, by Dr. R. C. Buist, of the practical management of the ureters in abdominal operations, based on an examination of literature and the experimental work performed by Dr. Leitch.

Infant Health Visitors, Glasgow.

A series of lectures, arranged by the Glasgow Infant Health Visitors' Association, is being delivered in the physiology class-room at the university. Although primarily for the health visitors, of whom there are now 307 working in the seventeen organized centres in the city, all interested have received a cordial invitation, and the opening attendance was highly encouraging. The series consists of lectures on physical defects in infants and how to recognize them, by Dr. Jas. H. Nicoll; common diseases of childhood, by Dr. J. B. Mackenzie Anderson; the hygiene of infancy, by Dr. Carstairs Douglas; and preventable blindness, by Dr. A. Maitland Ramsay. Professor Noel Paton, who presided at the opening lecture by Dr. Nicoll, referred to the objects of the association. The last quarterly returns show a total of over 1,600 infants being regularly supervised and visited every fortnight in the lower-class districts in Glasgow.

New South Wales.

[FROM OUR SPECIAL CORRESPONDENT.]

Colour-Testing of Railway Men.

We are indebted to Dr. G. H. Taylor, Railway Medical Officer, Sydney, for the following interesting note:

The colour-testing of candidates for the railway service of New South Wales is by Holmgren's wools and a modification of Williams's lantern. The retesting of men for colour vision on the running lines is by Williams's lantern alone. The old lantern can easily be learnt by a defective colour sense. The modified lantern is so arranged that the examiner can bring into view any contrast in colour or any single disc at will from the discs in the lantern. In the old lantern the discs move in regular sequence. Any method of colour-testing depreciates in value when it is used to tutor intending candidates, and this is openly done in regard to Holmgren's wool test and the old Williams's lantern. It is remarkable how a candidate in whom a defective colour sense has been clearly demonstrated, even a defective sense of red, can be tutored in the wools and old lantern to deceive an examiner. As his sense of shade, however, is never reliable, he may suddenly, after naming correctly a number of red and green discs, name a red, green, or white. If examined by a method new to him, detection is not difficult. The key to a candidate's colour sense is undoubtedly his sense of green. The smallest degree of defect revealed by the modified lantern is failing to see colour in the two pale greens and calling them white. This defect is not invariably confirmed by the Nagel test. The two pale greens show one with a little more colour in it than the other. When a candidate, with both of them in view, names one white and the other green, it indicates a more serious colour defect. This is, in the cases I have tested, always confirmed by examination with the Nagel test, the distinction being that the candidate in naming one white and the other green is using his sense of shade and not his sense of colour. The conflict of opinion that occasionally occurs in different examinations of a candidate by Holmgren's wools is due in a great majority of cases to atmospherical conditions. In an unsatisfactory light a man with a feeble colour sense may fail in his green test and satisfy the examiner under more favourable conditions of light. In the Nagel test, which is a severe one, but which could be learnt by an incomplete colour-blind, a good light is absolutely necessary. In a failing light or in gaslight persons with normal colour sense confuse the grey spots with green.

If a candidate confuses red with green or green with red, he is recognized by public opinion as a colour-blind. If he sees no colour in red and calls red white, there is also a certain degree of appeal to the ordinary man; but if he confuses pale green with white in the lantern test, or if, in matching green in Holmgren's test, his only mistake is to pick grey or brown wools, the uneducated man is not impressed.

A colour-blind engine-driver is protected from mistake under favourable conditions: (1) By his perception of shade, the signal lights used, red and green, being of a standard pattern; (2) by his exact knowledge of the locality of distant and home signals; they are not flashed upon him suddenly; (3) by the colour sense of his fireman. In shunting operations, however, where a confusion between white and green may at least imperil the life of a shunter, he must act promptly, guided entirely by his sense of green.

About 12,000 men have been examined in my office in regard to colour sense since my appointment two years ago. Of these, 4.92 per cent. were found to have defective colour sense, classified as—red blind 2.16 per cent., green blind 0.12 per cent., incomplete colour blind 1.12 per cent., and feeble colour sense 0.41 per cent., and 1.12 per cent. failed only in the lantern, the failures in the lantern being subsequently confirmed by Nagel's method.

I am satisfied that a man should not be admitted to the railway service as a worker on the running lines who in any degree has a defective sense of red or green, and that a man in the service, and working on the running lines, must be regarded as unfit if it can be shown that he fails to recognize green under conditions that 95 per cent. of ordinary candidates, consisting almost entirely of youths and young men, practically all of them wage earners, and certainly not educated in colour in the great majority of cases, never fail to recognize. No man is rejected whose only error is that he cannot detect green in the two pale green discs of Williams's lantern, this being his only error, and not repeated when he is shown their contrast to two whites.

Prior to the adoption of the modified lantern 0.42 per cent. with defective colour sense not detected by Holmgren's test were discovered by the old lantern. The new lantern increased that percentage by 0.7 per cent.

India.

[FROM OUR SPECIAL CORRESPONDENT.]

The Madras General Hospital.

A committee, presided over by Surgeon-General Benson, has been sitting to consider the advisability of removing the Madras General Hospital from its present position to another site outside the more popular part of the city. The cost of the scheme was

estimated at nearly forty lakhs, and Government has decided that funds will not admit of this expenditure being incurred, but steps will be taken to bring the hospital up to date in its present site. As the grounds in which the extensive wards are placed cover a large area, there should be no difficulty in adapting them to the new buildings which will be required. The Calcutta hospitals have been largely rebuilt in the last ten years, and the J. J. Hospital of Bombay is in process of reconstruction, so it is well that the Madras institution should also be brought up to date.

Special Correspondence.

PARIS.

Hospital and Teaching Reforms.

M. EDOUARD HERRIOT, Mayor of Lyons, member of the Conseil Supérieur of the Assistance Publique, proposes to build in the great city of which he is the presiding officer a hospital containing 1,200 beds. He wants it to be designed on the most modern lines, and, to insure that this wish should be fulfilled, he undertook a few months ago a voyage of discovery among the hospitals of Germany and Denmark. From it he brought back, among much else, the conviction that the management of French hospitals is archaic and ought to be the subject of wide-reaching reforms. We ought, he says, to build and manage our hospitals in a different way, and there is no one in France to contradict him. At the last Congrès des Praticiens, Dr. Archambault demanded autonomy for the hospitals, maintaining that their complete dependence on the Assistance Publique too often hampered the administrative officers. It is, in fact, very annoying to the management to be obliged for the least little thing to apply to the central office, and to compile reports, thus withdrawing the plans or schemes or proposals from their living environment, and in the end to receive, after irritating delays, a frigidly-worded permission from a remote bureau. As we have left the direction of the hospitals in the hands of pure bureaucrats, in order to leave the doctors free to pursue their scientific work undisturbed, it seems absurd to maintain such a system. Every administrative act in this special field must in reality be subservient to therapeutic considerations, and in asking that the director of the hospital should be a doctor—a doctor free from exacting and harassing central control, and, when necessary, provided with an administrative assistant to do the necessary clerical work—we put forward the most logical and practical scheme which can be devised.

It seems as though administrative reform ought to prove a fairly easy task, and one capable of speedy accomplishment, since the difficulties to be encountered will be human, and therefore ephemeral. To substitute structures more suited to modern hygienic ideas for those now in existence is quite another thing. How are we to pull down all at once the numberless and huge buildings now in use for the treatment of the sick? How is the enormous expense to be met? How can we consent to abandon, even for scientific reasons of the most imperious kind, buildings which are not large enough to take in all those needing help? It generally comes to this that the new buildings do not replace but are added to the old ones.

We recognize our backwardness in hospital management; we recognize it with the less shame because we know that it is due to our superiority in the past. France in times gone by was the first country to scatter through its cities refuges for the suffering. All the Hôtels-Dieu in the provinces have existed for centuries; some of them, such as the hospital at Tonnerre, in Burgundy, is the last remaining example of the timber work of the thirteenth century; many, such as the hospice of Beaune, are wonders of architecture. Having been designed as at once churches and hospitals, having been more anxious, perhaps, to save the soul than to tend the body, they may appear antiquated and heretical to the hygienists of to-day, but the piety and charity to which they owe their existence were wrong only in this, that they built them too lovingly, making of them monuments which are really imperishable because that modern progress dare not propose to pull them down. It is not likely that modern architects will be guilty of the same fault, for they know that buildings of a more temporary and utilitarian character are better adapted to the conditions of human and social progress, and that only a pure work of art has the right to be indestructible.

I have just said that it was fairly easy to reform administrative methods. On further consideration I think that the assertion was a little rash, and indeed, if I needed evidence of my rashness, I need go no further than the controversies on the question of the reform of medical teaching, and the violent demonstrations which disturbed the recent Concours d'agrégation. There are at the present time two centres of medical teaching, the Faculté and the hospital. The Faculté only is official, but if the influence of the hospital on the Faculté be left out of count, the instruction which it gives, apart from anatomy and physiology, is entirely theoretical. Professors and lecturers give learned addresses, but they have about the same teaching value as a geographical lecture delivered without maps. At the hospital, which is not supported by the State, but by the Assistance Publique, the teaching has, it is fair to say, become organized spontaneously. Down to 1893 the representatives of hospital work on the Faculté were the eight clinical professors, and the Faculté did not trouble itself very much about what the medical student did, and, by the decree of 1862, he was only required to produce a certificate of attendance. In 1893 the hospital course was instituted; it extends over three academic years, during each of which the student must spend three months in the medical and three months in the surgical department. During the last stage of his course a certain period must be given to obstetrics, and another to the special departments for skin diseases, mental diseases, diseases of children, ophthalmology, and diseases of the urinary tract. During this stage, which only occupies about eighteen months of the student's life, he is under the supervision of those members of the staffs of the hospital who are willing to undertake the duty and to furnish quarterly reports, which are forwarded by the Assistance Publique to the Faculté. It will be seen how under the influence of common sense the two spheres, the faculty and the hospital, have come gradually to influence one another, so that the two systems of instruction are becoming imbued with a common idea. The students and practitioners are least of all disposed to recognize any distinction between them. Most students eager to obtain practical instruction, and by whom every member of a hospital staff, indeed any doctor who, though he has no official hospital appointment, has yet gained a position giving him a claim to speak with authority, is esteemed a teacher, ask for nothing less than the abolition of the lecturers (*agrégés*). They argue that they are too few to be really useful teachers, and that they form a body behind the professors of the Faculté, a caste jealous of its official rank, and too much inclined to monopolize all the chairs in the school which was formerly much more ready to recognize freedom of education. But what they more especially aim at is the shifting of the centre of gravity of medical education from the school to the hospital. At any time since 1907 they have been expounding their reasons to the Ministre de l'Instruction Publique, but they failed to obtain a definite answer, and have not succeeded in inducing him to study the subject seriously. Their plan now is to stir the inertia of the public authorities, and to disturb the egoistical dreams of their opponents by kicking up a row at the Concours d'agrégation. Whatever our opinion may be of this plan which has obliged the judges of the Concours to take refuge behind a row of policemen, we must not forget the deeply grounded, and for the most part justifiable, grievances which have found expression in this outbreak of impatience.

BERLIN.

The Bicentenary of the Charité Hospital.—New Buildings for the Army Medical College.

THE Charité Hospital in Berlin has lately entered on its two hundredth year of existence, and the bicentenary has been celebrated by a ceremony which was attended by the Prussian Cultus-minister, accompanied by a staff of senior

State officials—the chief physicians and surgeons of the army and navy, the Rector of the Berlin University (Erich Schmidt), the deans of the various faculties, a full tale of the medical professors and private physicians of note, and many private persons of distinction—besides a large number of medical students. It was a brilliant and decidedly characteristic assembly.

Herr v. Trott zu Solz, the present Cultus-minister, acting for the King of Prussia, distributed among the Charité authorities quite a number of decorations—those crosses and ribands so keenly coveted by all good Prussians as a finish to their evening dress—and said that in graciously bestowing them his Majesty had wished to mark his appreciation of the great hospital's leading position. Then followed an address by the Physician-in-Chief, Surgeon-General Scheibe, in which he gave a historical sketch of the Charité's evolution from its first construction 200 years ago. Originally it was intended to serve as a plague hospital for Berlin and its environs, in accordance with the regulations for preventing the spread of plague enacted in November, 1709. But it was never called upon to fulfil the object for which it had been destined, since the scourge passed away at that time without attacking Berlin. The house, a large two-storied, timbered building, was then put to use as a garrison hospital, a few rooms being reserved for sick paupers. Under Frederick William I, Frederick the Great's tyrannical father of Carlylean renown, a proposal was strongly urged to turn it into a general hospital (Bürger-spital), but the bluff soldier-king could not be brought to countenance the change. On the margin of the ministerial rescript submitted to him he wrote: "This house 'longs to my regiment. Must not rile me by such nonsensical stuff.—Fr. W." ("Soll mit solchen Possen mir (*sic!*) nit ärgern.") Later, however, the consideration that a large general hospital would supply his army doctors and surgeons with the best material for study—and the cheapest, too, being so near at hand; and thrift we know was the King's ruling passion—induced him to rescind his veto, and in 1726 the establishment was formally converted into a "Bürger hospital," with reservation of a wing for the garrison. Its name, too, was given it by the King. A set of documents bearing on excise duties, from which in the year 1727 the hospital authorities prayed to be exempted, are still in existence, and on the margin of the official paper granting the request can still be read in Frederick William's crabbed handwriting, "es soll das Haus die Charité heissen.—Fr. W." (the house is to be named the Charité). By church collections and house-to-house begging the money required for extension and improvements was obtained. The King himself contributed the entire building material required. But the income for working expenses was and remained not only precarious, but grossly insufficient, so that the building fell into great disrepair, and the condition of the wards was quite disgraceful even for the times. At last, in 1785, Frederick II (the "Great") was brought to consent to reforms, and by his command, but unfortunately without due consideration of his doctors' demands, new buildings were erected, which, well or ill, continued to serve their purpose for more than a hundred years, the "Alte Charité" of our own days, some remnants of which may still be seen standing. The clinical courses grew more and more noteworthy, especially from the foundation of the Berlin University—in 1810—onwards, but at that time no real progress had been made in pecuniary matters, the means of support remained grossly inadequate, and the wards were in no less neglected a condition than before. It is true that early in the eighteenth century Frederick William III had ordered a strict inquiry into the whole matter, but Prussia's political downfall and its subsequent penury put a stop to this as to many other projected measures of reform, and things came to such a pass that Berlin tradesmen could no longer be induced to deliver goods to the hospital! In the end a royal visit from afar gave the impetus towards improvement. The Empress Dowager of Russia came to Berlin in 1818, and it was known that she intended to go over the Charité. Immediately a sum of 17,000 thalers (£2,550)—a large one for the times—was placed at the disposal of the hospital by the Government, and the most urgent necessities thus supplied. Ten years later further large funds were voted, and one by one new buildings and scientific institutes were erected. A large students' quarter, a real "Quartier Latin," grew up around the hospital, and under a long roll of illustrious teachers and masters of research, such as Traube, Langenbeck, Graefe, Virchow, v. Bardeleben, Frerichs, v. Leyden, Senator (to mention but a few), the fame of its clinical courses grew world-wide. But the buildings themselves and their hygienic and therapeutic arrangements, though reforms were attempted again and again, became in time hopelessly antiquated, and it was impossible to think of adapting them to the requirements of modern medicine. After a long period of effort and persuasion, the moving spirit of which was undoubtedly the late Geheimrath Althoff of the Cultus ministry, opposition was overruled at last, and in 1894, after reports and counter-reports unnumbered, and thorough inspection by the Prussian Ministries of Public Works, of Finance, of War, and of "Cultus," complete re-erection of the entire hospital was unanimously decided on, and a sum of almost £50,000 voted for building operations, to be begun at once.

At present the annual budget of the Charité amounts to close upon 2,000,000 marks (£100,000); in the year 1908 8,000,000 marks (£400,000) went through the books of the establishment. Besides its 200 doctors, a staff of about 700 minister to the wants of the patients. What may be called its military tradition still exists unbroken, for there is a special school of military surgery.

It is a curious coincidence that—as mentioned above—the centenary of the Berlin University should fall in the same year as the bicentenary of the Charité. May 7th, 1810, was the date on which Christoph W. Hufeland began his first lectures on pathology and therapeutics as a university professor in the building which had been the palace of Prince Henry of Prussia, the brother of Frederick the Great.

Last week the Emperor, who was accompanied by the Empress, opened the new buildings of the Emperor William Academy. The new academy, which has been erected in the Invalidenstrasse in the north of Berlin, is an imposing building, comprising laboratories, a library containing some 70,000 volumes, reading rooms, and quarters for 300 students. The Emperor, in declaring the new building open, said that the academy, which was founded in 1797, formerly known as the Frederick William Medico-Chirurgical Institute, had trained for the army a medical corps which had proved itself thoroughly efficient, and expressed the hope that with its new and improved accommodation the academy would continue to carry on its useful work for the army and the nation.

Correspondence.

THE ANNUAL MEETING IN LONDON.

SIR,—Will you please allow us to call the attention of members of the Association to the "Notification of Attendance" at the Annual Meeting, which will be found at the end of the SUPPLEMENT of this issue?

We hope to have a very large attendance at the meeting in London during the last week of next month, and we are anxious that all the arrangements made for the convenience and entertainment of members shall work satisfactorily. Nothing will conduce more to this end than early intimation of the names and numbers of those intending to be present. We would therefore earnestly appeal to all members, as soon as it is possible for them to arrive at a decision to attend the meeting, to fill up the notification form and forward it to the Central Office. We particularly request members resident in London to give us due notice of their intention to take part in the meeting.—We are, etc.,

E. W. GOODALL,
W. GRIFFITH,
LAURISTON E. SHAW,
Honorary Local Secretaries, 1910 Meeting.

429, Strand, W.C., June 14th.

CARBON DIOXIDE SNOW.

SIR,—The notes in the JOURNAL of June 11th, and the many inquiries which I receive, indicate that much interest has been aroused among members of the Association in

Morton's method of using carbon dioxide snow in the treatment of naevi and other cutaneous anomalies, and I should be obliged if you would kindly allow me to announce through your columns that at the Dermatological Section of the Annual Meeting Dr. Morton, in conjunction with the President of the Section, will give a complete demonstration of the method and show cases treated by it. A collection of improved appliances for the production of the snow will also be exhibited, some of these presenting novel features specially designed for the easy and convenient use of the method in private practice.—I am, etc.,

London, June 11th. W. GRIFFITH,
Honorary Secretary, Dermatological Section.

ON THE INFLUENCE OF THE SANATORIUM TREATMENT OF TUBERCULOSIS.

SIR,—I look upon statistics as the handmaid of medicine, but on that very account I hold that it befits medicine to treat her handmaid with proper respect, and not to prostitute her services for controversial or personal purposes. For statistics is an exact science, and the training that is required in medicine does not necessarily fit a man to use the services of statistics in a reasonable and proper manner. The medical man who has not been taught to respect exact science is liable to handle statistics in a manner which would call down on him the opprobrium of the whole scientific community, if he were, in the service of preconceived notions in physics, to handle thus any branch of exact mathematical logic.

I do not use these phrases lightly; there is an immense responsibility thrown on the medical profession when it publicly advocates any line of conduct, which in itself may be most desirable, to see that the arguments it uses are not mere arguments of the market-place, but sound in origin and authentic in all the facts they adduce. Nothing can be worse for the public, nothing worse for the medical profession itself, than the distrust between the profession and the public which must arise if the latter discovers that representatives of the former have made gross blunders in their statement of facts.

In an evening contemporary a discussion has recently arisen on the value of the sanatorium treatment of tuberculosis. I am not concerned with the medical side of that treatment, but I am concerned with the statistical evidence by means of which the contrast between pre-sanatorium treatment and modern sanatorium treatment has been established by two recent medical writers. Mr. Charles H. Garland makes the following two assertions in his letter to the *Pall Mall Gazette* of the 6th instant.

(1) "In 1865 a statistical investigation was published by Dr. J. E. Pollock, embodying 3,566 cases of consumption in all stages which had been observed by himself." (This is absolutely correct.) "*The average duration of life in all these cases from the first symptom of the disease to the fatal termination was two and a half years.*"

(2) "*Dr. Pollock further found that no less than 83 per cent. of the patients whom he saw in the early stage of the disease died within five years of the first symptoms.*"

Mr. Garland calls this a "grim picture." It is, indeed; but the grimness is of another kind from that which he suggests.

Both the statements in italics above occur verbatim on p. 44 of a work by Dr. Arthur Latham and Mr. Garland, entitled *The Conquest of Consumption*, just published, and in a chapter termed "Our Knowledge of the Disease." The second also appears in the form of a table in a paper by Dr. Arthur Latham published in 1907 entitled, "The Economic Value of Sanatoriums." The table is headed "Results of 194 Cases of Chronic Phthisis in the First Stage." In that table Dr. Latham tells us that at the end of the *second year* 13 per cent. of these cases of Dr. Pollock were *dead*, and at the end of the *fifth year* 83 per cent.; and Dr. Garland puts against this 83 per cent. the 57 per cent. of the patients in Prussian and Hessian State railway sanatoriums, who were at the end of five years in full enjoyment of their working capacity.

Now Dr. Pollock's book of 1865, *The Elements of Prognosis in Consumption*, is, even from the statistical standpoint, a most cautious and scholarly work. He tells us exactly what he has observed and how he has observed it. From the medical standpoint of 1865 there is nothing slipshod or careless about it. He is most careful to tell us that he is speaking of the *observed duration* of the disease only, and that of the first-stage chronic patients the *observed* duration of the disease was 49.48 months when last observed, and that *not one had died under observation*. In other words, instead of 83 per cent. being dead before five years were out, not *one* was dead, and the mean period during which the disease had been observed was more than four years; 83 per cent. of these patients had had the disease for less than five years. This 83 per cent. of patients alive when last observed are converted into dead men by Dr. Latham and Mr. Garland, and used to show the "grim state" of affairs in pre-sanatorium days!

Now I have no doubt that Dr. Latham and Mr. Garland will tell us that this is a mere error of reading Dr. Pollock. Do they reckon their statement as to the 3,566 cases also as another mere error of reading? Dr. Pollock only tells us that on the last occasion on which he examined these patients the disease had lasted so long, but the patients were not dead and many have lived years after. In fact, the patients whom Dr. Pollock reports as being dead form a very very small percentage of those he examined. All the 3,566 are slaughtered by Dr. Latham and Mr. Garland. I assert that this is a very grave matter indeed, and that when the public is appealed to, as it is in their popular manual, there ought to be no possibility of mere errors of reading of this magnitude.

I know only one course open to these authors—that is, the immediate withdrawal of *The Conquest of Consumption* until the chapter entitled "Our Knowledge of the Disease" has been rewritten and brought statistically up to the knowledge of 1865.—I am, etc.,

KARL PEARSON.
Biometric Laboratory, University College, Gower Street, London, W.C., June 8th.

INFLUENCE OF POSTURE IN PHYSICAL EXAMINATION.

SIR,—It would have been odd had it never occurred to any one during the now very considerable period in which methods of physical examination have been practised that so mobile an organ as the heart should present some variation dependent upon change in the posture of the patient. The mere fact, however, that Sir James Barr considers Dr. Gordon's views on the "rightward edge of the cardiac dullness" in this matter of "ancient history" "the reverse of the truth," shows that even on the "eve of the second decade in the twentieth century," to use Dr. Ewart's words, it is not altogether an "anachronism" to discuss this elementary point.

It has been said to be injurious to the eyesight, and frequently wholly destructive of originality, to inquire too curiously into the labours of our predecessors. The exercise, nevertheless, is usually wholesome if chastening, and it is a duty which is too much neglected. In the letters which appeared in your last issue there is, I venture to say, a good deal of "ancient history" without much mention of the ancient historians.

The recognition of the *principle* of percussional variation due to differences of posture is not new, although definite details in this matter are not, as Dr. Gordon says, frequently met with. Skoda wrote in 1839: "The heart, the liver, the spleen, offer a resistance through the thoracic wall great in proportion to their application against the chest wall and their density." Hope, in the same year, states that "the heart is by its own gravitation withdrawn in some degree from the anterior walls of the chest when the subject lies on his back, especially inclined a little towards the right. The same effect is produced by full inspiration even in the erect position. . . . On the contrary, when the subject leans forward and a little to the left, the heart, displacing the lung by gravitation, comes into more than ordinarily extensive contact with the walls of the chest." Walshe, again, remarks: "The act of respiration and alteration of the posture of the trunk will of course change the position of the heart's dullness;" and also adds, "not the slightest change in position, even of the limbs, ought to be permitted during the examination."

These quotations, which might be multiplied, serve to show that in this matter we are dealing with "ancient history." But, like Auenbrugger's extension of the ancient percussional method to diseases of the chest, which was

practically ignored for fifty years, the importance attached by past observers to this or that point in the details of physical examination, is apt to be forgotten. History, however, repeats itself. Old discoveries are rediscovered and the last discoverer is frequently quite ignorant of the existence of his predecessor. He has often retained both eyesight and originality from this circumstance. The majority of textbooks are archaeological neither in method or intention, and thus, much valuable information lies unrecognized by the fleeting generation of the moment. Laënnec's discovery of auscultation (I suppose he discovered it) within ten years of Corvisart's translation of the *Inventum Novum*, probably accounts in great measure for this partial eclipse, for a considerable period, of the percussional method, and also for the fact that, now and again, some detail in the results given by that method, has appeared to be new to a more recent observer. The point of interest in anything considered new is, of course, to determine whether it be of practical importance, and it cannot be so if it be not also true. In Sir James Barr's opinion, Dr. Gordon's conclusions are, as I have said, "the reverse of the truth."

Particular attention was redirected in this country to the percussional method, when the reports of phenomenal shrinkages in the cardiac area were reported as a result of the balneological treatment of heart disease some fourteen years ago. I was asked at that time to write an account of the methods practised at, and the virtues resident in the waters of, a health resort, then and now in vogue for the treatment of heart disease. I preferred to write a more general essay on cardiac failure, and in this connexion studied the possible causes of the shrinkages to which I have referred. Experience gathered in the interval by myself and others might cause me to modify some of the views expressed in the book in question, but such modification could not apply to matters which I regarded as facts observed. Among these are the conditions of which Dr. Gordon treats and some to which Dr. Auld refers. A point which I proved to my own satisfaction was, to continue remarks which Dr. Gordon was good enough to quote, that: "These differences, although discernible in kind, are evident in a less degree in normal hearts acting vigorously than in those enlarged by hypertrophy or dilatation, or enfeebled in action; and some of them . . . are due to skin, not heart, movement" (p. 19). Nor do I find that subsequent observations suggest my altering the following statement: "The mobility of the heart and its retreat in the recumbent position from the chest wall no doubt in part account for the percussion differences in that position, but these are partly due also to that circumstance which accounts for the great fall of the upper percussion limit of the liver—namely, that while lying on the back, the ribs, carrying with them their diaphragmatic attachments, move slightly headwards, describing a segment of a circle with the vertebro-costal joints as a pivot, together with a widening of intercostal spaces, and thus interpose more air between the liver and the anterior thoracic wall. If transverse measurements be made with calipers at the level of the sixth rib, it will be found that the diameter of the chest is greater by half an inch in the recumbent than in the erect position. It is probable, also, that the liver, with its firm attachment to the diaphragm on its upper and posterior surfaces, sinks somewhat backwards and causes the anterior portion of the organ to retreat in proportion from the chest wall when a man lies on his back."

I should only add that any such movement of the liver is bound to carry the right auricle with it, which accordingly is less evident on percussion in that posture. The *shape* of the anterior portion of the chest—a point with which Dr. Gee has fully dealt in his classical work on *Auscultation and Percussion*, has also a considerable influence on the results obtained by the latter method, in estimating the size of the heart.

With the advent of skiagraphy and its skilful and calculated use, there is no difficuly in demonstrating this influence of posture in modifying the relation of the heart to the chest wall, and this shows, in my opinion, that Dr. Gordon's contentions and my own are substantiable. They are, I think, important, not only in the interests of precision in clinical description, but because they are more pronounced under pathological circumstances.—I am, etc.,

London, W., June 13th. ALEXANDER MORISON.

SIR,—I am glad to have elicited three such valuable letters. They make very clear the need for discussion. When Dr. Ewart considers that the facts I have pointed out "have long been well known," and Dr. Auld agrees that "the heart appears larger to percussion in the erect posture," whilst Sir James Barr declares that, in his opinion, my "conclusions are the very reverse of the truth," some reconsideration of the subject is obviously desirable.

Now, Sir James and I are evidently talking of two quite different things. He finds that he can map out fairly accurately the *complete area* of the heart, even in extreme cases of emphysema, more accurately than it can be determined by the orthodiagraph. I make no such claim. To such perfection of percussion my conclusions must, of course, be wrong, because the *heart itself* is rather wider in recumbency than in the erect position. But with ordinary percussion, which, in neither posture, does more than approximate to the heart's outline, I maintain I am right, and am glad to see that I am not without very authoritative support.

Sir James is therefore quite justified in asking what is my method of percussion. I used the ordinary digital method which is in almost universal use, and thought that this would be assumed in absence of any statement to the contrary; if I had used any other method I should have said so. Sir James uses the pleximeter, and this raises a point of far-reaching importance. If the pleximeter is capable, in other hands, of yielding such results as he obtains with it, its use ought to be universal.

This brings me to the question of the exact outlines I have given. Failing absolute certainty in mapping out the whole area of the heart, every one's outline must be a personal matter. I do not by any means insist on the exact precision of my diagrams. They were only meant to indicate, with moderation, the differences to which I wished to draw attention. Consequently in the diagrams of the dullness in the erect position the outline of my rightward edge is less to the right than I might reasonably have drawn it.

I have not compared the cardiac dullnesses in the two positions in cases of orthostatic albuminuria. I do not see how Dr. Albert Abrams's valuable work on the "cardiac reflex" touches my paper. Dr. Ewart's admirable little book on *Cardiac Outlines* does not refer to my point. Dr. Auld's interesting observations on the postural changes in the dullness areas of other organs support my position as regards changes in the cardiac dullness

As to history, I should be very sorry to claim a priority which does not belong to me. Will Sir James Barr or Dr. Ewart be so kind as to quote the papers which anticipated mine, which I read before the Royal Medical and Chirurgical Society (November 14th, 1905), on the Influence of Posture on the Normal Cardiac Sounds and on the Normal Cardiac Dullness?—I am, etc.,

Exeter, June 15th. W. GORDON.

AUSCULTATORY PERCUSSION.

SIR,—The discussion under this heading will be very useful if it leads to a clearer appreciation by some of what it is we can learn about the stomach by percussion with or without simultaneous auscultation. As a teacher of medicine, I have always found it necessary to warn my pupils against the idea that the gastric resonance has any necessary relation to the size of the stomach. It has never been quite clear to me why any one with an elementary knowledge of physiology should guess that the entire stomach, whatever its contents, should give out a resonant note; but, by carefully questioning my ward clerks, I find that many of them do guess this way; and, from what I read in your JOURNAL and elsewhere, it seems to me that this early guess becomes a fixed belief of some practitioners. I have found it helpful to my students to remind them that the area of gastric resonance, however carefully defined, merely gives them information as to certain dimensions of the "gastric air bubble." I am not at the moment concerned to discuss the relative value of auscultatory and ordinary percussion, but to maintain that any one who is in the habit of assuming that the size of this "air bubble" will give him trustworthy information as to the size and shape of the stomach will find his

results contradicted by any rational method of mensuration and localization of the entire organ.—I am, etc.,

London, W., June 13th. LAURISTON E. SHAW.

SIR,—In Dr. Hertz's interesting letter (June 11th, 1910, p. 1444) he states that, as a result of experiment, he finds that in no case did the percussion outline of the stomach approximately correspond with the outline of the *x*-ray shadow of that organ.

Theoretically, in no case of any internal organ capable of being defined by percussion and by *x* rays can the two outlines correspond, unless the external surface of the body were spherical, and the focus tube could be placed at the centre of the sphere, the respective systems of projection being entirely different. Nor can the respectively traced outlines be directly comparable.

Further, while the percussion outline of an internal organ in a big man is fairly similar to and comparable with that in a small man apart from alteration due to disease, this is not the case with an *x*-ray outline of an internal organ in a big man as compared with the *x*-ray outline of the same organ in a small man. On the contrary, in the case of *x*-ray examination, unless the distance of the radiographic centre of the focus tube from the individual is proportioned to some one definite external dimension of the region to be examined, the *x*-ray shadow outline in a big man would be dissimilar, and not truly comparable to the outline in a small man, even though in both cases the organ in question were of normal proportion and position.

This is the principle of proportional representation, which up to now has been entirely neglected in clinical radiography.—I am, etc.,

Bristol, June 12th. W. COTTON, M.D.

THE PSYCHOLOGY OF THE CONSUMPTIVE.

SIR,—I have read with interest the remarks contained in your leader on this subject. There is no doubt that the average consumptive, especially as met with in sanatoriums, tends to be decidedly neurasthenic—in other words, his nervous system is usually more or less out of gear.

It appears to me that this is less due to the particular physical condition from which he is suffering than to the general moral environment in which custom has decreed that his lines shall be cast.

To my mind, tuberculosis is essentially a disease of "civilization" (to use that term in its least favourable sense). It is one of the punishments humanity has had to suffer from having "advanced" too eagerly, without sufficient forethought, in straggling groups rather than each man shoulder to shoulder and with mind alert and balanced.

This disease is a product of our imperfect or pseudo-civilization; it follows that the general lines of its treatment involve a "return to Nature." It is to a recognition of this principle that we owe the introduction of the open-air treatment of phthisis, with all its gratifying results.

We yet, however, are not quite satisfied. It is observed that many patients exposed to all the most favourable conditions of fresh air, rest, and simple nourishing diet, still fail to progress altogether satisfactorily. Many of them become moody, querulous, self-centred, and this reacts unfavourably upon their physical condition. The reason is that our "return to Nature" has been imperfect. We have forgotten one of the most important elements of that "natural" life to which we are trying to lead our patients back. We have given them simple food and fresh air, but we have forgotten to give them work.

If I may be excused the use of a teleological expression, I would suggest that we are all of us "meant" to work, just as we are "meant" to eat and breathe. We all of us come into this world with a talent of some sort to develop, and if we do not do our best to develop that talent, our spiritual condition is bound to suffer. It is the spiritual element in our sanatorium patient that is not being sufficiently catered for when he or she suffers from "nerves." What these patients need, and what the more progressive sanatoriums are beginning to give them, is congenial work—work which allows of self-expression. They are going to be allowed to work out their own salvation, to feel "that they are of some use in the world," and so to attain to that self-reverence which alone, in the poet's words, "leads life to sovereign power." A man who is for long periods not allowed to realize himself in work is almost bound to suffer morally.

The kind of work suitable for phthisical patients does not admit of a general statement; a little ingenuity will discover some suitable task for every case.

I am persuaded that there is a future for what may be provisionally called "ergotherapy," not only in tuberculosis, but in many other chronic asthenic conditions. The rest cure will be in future, to a great extent, supplemented, if not replaced, by the work cure. The simple life and the strenuous life are not incompatible. "Ergotherapy" is not a fad; it is physiology. Our ancestors knew about it. We have been lately forgetting it. "The end of man," says an old writer, "is an action, and not a thought."—I am, etc,

Edinburgh, May 19th. ARTHUR J. BROCK.

SIR,—The leading article in the BRITISH MEDICAL JOURNAL of May 21st last, entitled "The Psychology of the Consumptive," besides interesting me deeply, has reminded me of a small investigation I made into this matter a few years ago.

It had always struck me very forcibly that in patients suffering from pulmonary tuberculosis the effect of the mind over the body has a large contributory effect on either the death or recovery of the patient. Consequently, one would think that a patient with a disabled mind—that is, through insanity—would have a greater chance of recovery through that disablement preventing him from dwelling on his disease, especially in those asylums where open-air treatment is carried out.

I wrote to Dr. Alfred Miller, of the Warwickshire County Asylum, asking him if the death-rate in his asylum was greater in those patients suffering from phthisis having cognizance of the disease or in those without cognizance. I append his remarks which he has kindly sent to me, and which are as follows:

> Taking phthisis to refer to pulmonary tuberculosis only, during last year we had 10 out of a total of 61 deaths among females, and 9 out of a total of 49 deaths among males from the disease. Six of these women were suffering from dementia (1 was epileptic), 3 from mania, and 1 was an idiot. Of the men, 7 were demented (1 being epileptic), 1 was the subject of mania, and the remaining case was of epileptic idiocy. In only 2 women and 1 man was the disease diagnosed on admission, but the difficulties of making a satisfactory physical examination of any insane person are very great. I do not think that any of these patients who died last year were aware of the disease from which they were suffering, or, at any rate, worried about it. This has been my general experience for many years, although in one or two isolated cases patients admitted with phthisis and a family history of that disease have been melancholy; but I do not think that the mental condition in the least affected the progress of the physical disease. You will observe that during last year there was not a single death of a melancholic patient due to phthisis, which would be the most common form of mental affliction were the patients sufficiently sensible to dwell upon the seriousness of the disease. We have an open verandah for females; eight beds always full, summer and winter. The expectoration is a most hopeless business; the majority of the insane will not expectorate, or, if they do, on to the floor. It must be borne in mind that some of the insane are quite good patients, and stand just as good a chance of benefiting by treatment as their saner brethren; but, on the other hand, the demented and those of faulty habits are quite hopeless to deal with, and it is these whom, in my opinion, increase our death-rate by spreading disease among their fellows, and by their habits hasten their own dissolution.

From Dr. Miller's remarks it may be concluded that the mind, generally speaking, must be healthy and free from all morbid thoughts, more particularly in those suffering from phthisis, because he shows that the larger death-rate is from those patients who have no cognizance of the disease they suffer from on account of their mental condition, although open-air treatment is provided.

This leads one also to the conclusion that the cure of pulmonary tuberculosis depends mainly on:

1. A healthy mind.
2. The faith the patient has in the doctor who is responsible for him.

3. The faith the patient has in the place he is sent to. (We all know that some patients get well with no treatment; others by being sent to various health resorts over Europe; others, again, by being sent to various sanatoriums; and also that a patient will get worse in one sanatorium, and on removing to another, where the same treatment is carried out, get better.

This draws one further to suppose that pulmonary tuberculosis is a psychological problem—in fact, a mental disease the cure of which depends much on the mental temperament and its receptivity to suggestion, much more than is now recognized or supposed, and even more so, perhaps, than by any climatic treatment, concerning which latter cures are obtained in every climate in the world. This explains, probably, why some sanatoriums have better results than others. Sanatorium treatment being absolutely dependent on the influence the doctor has over the mind of his patient and his power to remove the black despair which is so common at first in consumptives, and his power also to increase the faith which many patients lack.

In conclusion, I would add that I found suggestion by hypnotism of much avail in treating symptoms in certain cases, and I believe in time that this form of treatment will be used for much good as regards results. I believe, also, that for such results a sanatorium (climate immaterial) is the best place in which to obtain them, because here the patient is directly under the influence of the doctor, the diet is more carefully watched, the patient's general life is more easily regulated, and the treatment, both mental and physical, can be better carried out.—I am, etc.,

J. Penn Milton,
Yelverton, R.S.O., May 20th. M.R.C.S.Eng., L.R.C.P.Lond.

THE SURGICAL TREATMENT OF GLYCOSURIA.

Sir,—There are some conditions in the behaviour of diabetic urine which may be found as valuable and important as other tests, both in verification and therapy. In the first case there is an organic acid—presumably lactic—which helps to form, I think, the ordinary acidity of normal urine, which is also associated with the sugar in diabetic urine, and which seems to clear off with the sugar; 20 c.cm. of urine shaken up with 5 c.cm. of 1 per cent. solution of potassium permanganate and filtered, will be found to have lost a part of its acidity. Presumably this organic acid is destroyed by the oxidizer; if equal volumes of permanganate is used still more acidity has disappeared, the phosphates are left on the filter, and the urates, and what I have described in my *Quantitative Urine Analysis* as *possible* urates, disappear. Using my carbohydrate sugar test* for estimating sugar in urine, I am obliged to reckon with this organic acid and salt heat evolution, and include it with that of the sugar; but it seems also that the urates, organic salt and acid, clear off with the sugar. Hence I am obliged to view acidity of urine as only part of one and the same condition, as in arthritic conditions of urine, where I shall find perhaps a normal acidity of urine and a high organic acid or salt heat factor, that is, I take it, there are lactates as well as free lactic acid in such urine, both referable to the same condition, and sugar is also in relation with the lactates in function and in analysis. Using a small centrifuge and the copper hyposulphite test solution, I find urates and alkaline phosphates may be estimated at the same time, in exactly five minutes; the lactates are estimated by the carbohydrate test in three minutes.—I am, etc.,

London, S.E., June 13th. J. Barker Smith.

Sir,—The clinical importance of the subject must be my excuse for again trespassing on your columns in reply to Dr. Cammidge's letter in your issue of June 11th. It appears to me that Dr. Cammidge rather evades the point which I have raised and on which I was anxious to get from him a definite pronouncement.

The point at issue is the influence of complete fermentation of the urine on the presence of the reaction. I maintain that complete fermentation of the urine renders the reaction negative, and am anxious to know what exactly Dr. Cammidge maintains on this point. There is nothing inconsistent in the two statements reproduced by him from my two letters of May 14th and June 4th respectively. When I stated in my first letter that in every case of glycosuria the pancreatic reaction is positive, this referred to the results of examination of the urine before fermentation, not after, as is assumed by Dr. Cammidge in his last letter. May I once more make my position clear, and, in view of the practical importance of the subject, make a suggestion?

The method of analysis employed by me has been the "improved method" described by Dr. Cammidge, and my familiarity with the correct end reaction was the outcome of a demonstration very kindly given me by the author of the test. In the course of over a thousand analyses I have made a special study of the influence of complete fermentation on a large number of urines which give a marked pancreatic reaction, but which do not contain sugar to ordinary tests; and I have found, as stated in my second letter, that "complete fermentation of the urine invariably has the effect of rendering the reaction negative." This experience naturally led me to conclude that the test has no practical value in cases of glycosuria. In his letter Dr. Cammidge does not quite clearly define his position on the point at issue, but his statements seem to imply that his experience of the fermentation test both in the case of sugar-free and sugar-containing urines is diametrically opposed to mine. This is the point on which I would like a definite pronouncement from him. If I have interpreted his position aright, our different results must be due to certain differences in the methods of examination during the process of fermentation. This view might be put to a practical test in the following way. I could send to Dr. Cammidge within the next few weeks a series of half a dozen samples of urine from medical patients under my own care whose urine does not contain sugar to ordinary tests, but gives a marked pancreatic reaction, and he can determine the influence of complete fermentation of the urine on the presence of the characteristic reaction. If he will send me a like number of specimens, I will make the same examination, and we might profitably compare the results in the series of 12 cases in communications published in the autumn.—I am, etc.,

Edinburgh, June 12th. Chalmers Watson.

PALPATION OF THE ABDOMEN WITH SUPERIMPOSED HANDS.

Sir,—In the British Medical Journal of June 11th are reviews of two books on palpation of the abdomen by Theodor Hausmann and Sacconaghi which state that both authors recommend the method of palpating the abdomen in difficult cases by placing the hands one over the other. I have not been able to see the books, but I should like to point out that this method of palpation was advocated by me over twenty years ago in a paper on abdominal palpation in pregnancy, read on November 28th, 1889, before a Branch meeting of the British Medical Association. The paper was published in the last volume of the *Illustrated Medical News* (January 11th, 1890), of which there is a copy in the Library of the Royal College of Surgeons.[1] This last volume does not appear to be in the library of the Medical Society of London, and no doubt it is due to its rarity that my paper is not mentioned in Dr. Alexander Maclennan's excellent book on abdominal examination and manipulation in pregnancy, published in 1902.—I am, etc.,

London, W., June 11th. Herbert R. Spencer.

THE COLLEGE OF SURGEONS' DISSECTIONS AND SURGERY.

Sir,—A great number of medical men must feel with Mr. Chas. Wray that stereoscopic reproductions of many of the dissected specimens in the College of Surgeons would be most useful. I have very often heard practitioners, on revisiting the dissecting room, express the wish that they could go through another course of practical work. This, in the great majority of cases, is an im-

* Saturated solution of potass. perm. 4 c.cm., dilute sulphuric acid, 1 c.cm. Urine, 1 c.cm. Take the heat evolution by small stem thermometer.

[1] The volume is also in the Library of the British Medical Association.

possibility. It is often only at odd moments that the busy practitioner has time to refresh his anatomical memory, and if he had at hand a good stereoscopic atlas with a short description accompaning each plate, these moments might be most usefully employed.

Professor Waterston has done a great service to the profession in popularizing the stereoscopic photograph. It seems a pity that a collection so famous as that at the College of Surgeons should not be reproduced so that it would be accessible to the great majority of the profession.—I am, etc.,

London, W., May 25th. NORMAN PATTERSON.

SIR,—I have read with much interest Mr. Wray's letter regarding photographs of the specimens in the Royal College of Surgeons. I should like to be permitted to state that, as a university coach, I have often deplored the fact that such a set of pictures was unobtainable. They would be of the utmost service to all reading for examinations in medicine, and especially surgery.

The diagrams in some of the textbooks on anatomy and physiology are most inefficient, and it is an essential factor to have something in the way of photographs as an aid to practical work.—I am, etc.,

London, W., May 17th. HENRY J. NASH.

THE ACTION OF CUTANEOUS ANAESTHETICS.

SIR,—The experiments in "the action of cutaneous anaesthetics," reported by Dr. Short and Mr. Salisbury in the JOURNAL of March 5th, p. 560, are very interesting, but, I venture to suggest, do not justify the sweeping conclusions to which they come.

Experiment on the normal skin is a very different thing to observations of the actien of these drugs on inflamed parts, and to advise on such slender grounds the abandonment of well-worn remedies seems a little premature.

In my clinical experience, emplastrum belladonnae and emplastrum opii *do* relieve pain. Whether they ought to do so or not is another matter, but, from an extensive use of both remedies in such affections as the buboes in bubonic plague, their action in relieving pain is a *fact*.—I am, etc.,

J. PRESTON MAXWELL,
Tung-chun, Fukien, China. M.B., F.R.C.S.

A MEANS OF RESCUE IN TIDAL DROWNING.

SIR,—At rare intervals one reads of a person being held fast by some means whilst the tide rises over him, and being drowned under only a foot or two, or perhaps under only a few inches, of water. Sometimes the tide is near the turn; at others the man can be extricated, but time is required; in either event the life can be saved if the respiration can be kept going for a few minutes.

The accident which happened at Workington Harbour recently appears to furnish an example. In spite of the most noble and heroic efforts it was impossible to dislodge the man until the tide had risen over his head and submerged him for such a period that he ultimately succumbed to the strain.

As a teacher of ambulance I have been often struck by the absence in the press reports of any reference to a means of rescue which is almost always available, and which would be effective in most cases.

An ordinary bucket, inverted in the air and forced down through the water and well over the patient's head, would carry enough air to last him for a few minutes, and the supply could be repeated as often as necessary. By using two buckets the patient need miss a breath only very occasionally, whilst the change was being made, and the moment might be signalled to him by tapping on the bucket.

Perseverance would enable any one to overcome the difficulties of any ordinary case. The buckets might be handled by a person standing on the machinery or rock by which the victim was held down, or by a swimmer in the water aided by helpers "standing-by" in a boat. The patient's co-operation would not be absolutely necessary.

An alternative method of supplying air is to pass to the patient's mouth a piece of piping long enough to reach to the surface. The rescuer would have to clear the water out by blowing down the pipe until the patient got hold of it. This plan would be easier for the rescuers, but I doubt if it would be so convenient for the sufferer.—I am, etc.,

JOSEPH JONES, M.D.,
Honorary Surgeon, Leigh Division, St. John Ambulance
June 11th. Association.

NATIONALIZATION OF MEDICAL SERVICE.

SIR,—Professor Moore (p. 1345) maintains that the nationalization of medical service will be for the benefit of the profession as well as of the public; and that even the transition to the new state of things need not be feared by present day practitioners. As regards the ultimate benefit to the profession I do not doubt his conclusions, though his reasoning is not absolutely convincing; but the transition is another matter. The new appointments which are being created so rapidly are nearly all at small salaries: these will doubtless be increased later, but they are at present so small that a practitioner with a family could not accept them. Even if he could accept such a salary he could not comply with the conditions, which nearly always include possession of a D.P.H., and which frequently exclude men over 40 years of age.

Now there are hundreds of practitioners almost entirely dependant on the class of patient which, we are told, is shortly to be treated by the State medical service; and there are hundreds of others who derive a considerable proportion of their income from the same source. Under the new régime these men must lose their present practice.

Professor Moore thinks that the reduction in private practice will be fully compensated by the reduction in men entering on such work. This may be true as a general statement, but it does not help the individual. The practitioners to whom I refer will be unable to get their share of the private practice which remains because they live in the poorer parts of the town, because they have the local reputation of being "club" or poor men's doctors, and because the habits of a lifetime have rendered many of them less able than their competitors to accommodate themselves to the bedside manner required by richer patients. If they are to get a fair share they must go to a new house and a new style of practice—both changes which require pluck and expenditure, and involve great risk. If they do it the cost, both financial and nervous, will be high; and many will not succeed after the change. Probably many will never make it, because, as the transition to a State service is to be gradual, many men will either not realize the necessity for alteration in their style and place of practice, or will fear to make it, until they have been squeezed dry and helpless by their gradual loss of income. If Professor Moore be right the transition will benefit the practitioners already established in the "West-Ends" of our towns: it will be death to many in the "East-Ends."

The remedy plainly seems to be that the Association should definitely set itself to obtain such conditions for the new appointments that they may be reasonably acceptable to, and obtainable by, older practitioners. A very few are so at present, the great majority are not. The practitioners to whom I refer are in every way qualified for the work, for which a D.P.H. is not, and a living experience of poor-class practice is really necessary. If this be not done the present day poor-class practitioner is doomed to the same starving-out process as overtook the lower class private schoolmaster after the passing of the Education Act in 1870.

Will Professor Moore give authority for his statement that the average income of the profession is well below £200 per year? On the face of it the statement, which I have met before, is astonishing, even after one allows for the unpaid H.S. and others with no income. The present day assistant in general practice has a *minimum* income of £170—reckoning board and lodging as worth £50 per annum.—I am, etc.,

Newcastle-on-Tyne, June 4th. T. L. BUNTING.

SIR,—With your permission I should like to make a few remarks on an article published in the JOURNAL of the 4th inst., under the above heading.

Dr. Moore writes: "Many men in private practice cannot see where things are drifting to under present and foreshadowed legislation." I do not think general practitioners are quite as blind as he suggests. They possibly lack some of his imaginative powers, and may be even diffident as to the cogency of his reasoning; but they mostly recognize the fact that much of the legislation he refers to threatens ruin to themselves, notwithstanding his assurance of their ultimate welfare. Specialists and whole-time medical officials almost invariably regard the nationalization of medicine with equanimity, as they would not be greatly affected by it. It is true Dr. Moore gives reasons why he thinks the general practitioner would be benefited by this nationalization. What are these reasons? "If," he says, "half the men graduating were accommodated with suitable and permanent berths in the public services, so that only half the number entered upon work as private practitioners, then it is logical, and indeed most obvious, that half the work could be taken from private practice and put into State practice without affecting the income of the private practitioners in the slightest degree." No doubt it is "logical" and "obvious" that such a result *could* take place, but that it *would* is quite another matter. If half the present practitioners were given posts in the public services under some of the proposed nationalization schemes, it seems to me far more logical and obvious that it would be wise on the part of the other half to endeavour to get similar posts. With half the profession affording free medical attendance to all the poorer classes on the lines, say, of the Minority recommendations, it would be a poor look-out for the other half who might try to get their living by private practice. The general reduction of fees would be serious enough. Where State medical attendance could be got for the asking, the private doctor's charges would have to be very moderate.

With the exception of a small class of practitioners who attend almost solely on the wealthy classes of the community, the ordinary practitioners of the country would find their "occupation gone."

Dr. Moore further says, "The present *average* income of the profession lies well below £200 a year." It would be interesting to know how he obtains this average, which will come as a surprise to the average practitioner. Advertisements in the medical press will demonstrate that assistants can readily command this income. Many assistants are dissatisfied with their salaries, but it may console them to know that they are at least equal to the incomes of the average members of the class that employs them. Is not Dr. Moore, as the dean of a medical faculty, surprised that a student, or his parents, are willing to lay out a thousand pounds on a medical education that could only be expected in the future to yield an "income well under £200 a year"?

I fear Dr. Moore's arguments are hardly calculated to promote solidarity in the profession.—I am, etc,

London, E.C., June 11th. MAJOR GREENWOOD.

MEDICAL SICKNESS SOCIETY.

SIR,—I am glad to read the letter from Dr. Herman and Mr. Swinford Edwards, as I have always felt that the affairs of this society require fuller ventilation than they have hitherto received. I can assure them that the last thing I wish is to say anything which would injure the society.

Now as to the "misstatements as to matters of fact" of which they accuse me:

1. I repeat that no motion is allowed to be proposed which has not the sanction of the chairman. Whenever I sent in a matter for discussion I was always told that it would be submitted to him, and although, with his usual courtesy, he allowed it to be brought forward, it was never allowed to be placed on the agenda. The committee knew nothing about it until the meeting, and therefore could not have been consulted at all. As naturally no one would submit anything for discussion which had not a direct relation to the affairs of the society, the proposals could not have been "irrelevant," however "absurd" some members might think them.

2. That it is a "one man" society is proved by the fact that all matters of policy are decided by the chairman, and that the discussion of these by the committee is discountenanced unless it is initiated by him. Further, all matters not officially approved of are deliberately suppressed in all reports of meetings and even in the minutes. On several occasions I brought forward questions at the annual general meetings to which not the faintest allusion was made in the report.

3. I never regretted that I was not an actuary until I joined the committee, when I came to the conclusion that it was actuary ridden. Everything that the actuary (who is also secretary) said was taken as gospel, for the simple reason that no one present was able to confirm or deny it. I am fully aware of the necessity for expert actuarial guidance, but I submit that this should not take the form of *ex cathedrâ* statements without explanation, but that the committee should be empowered and invited to use its own judgement. The "independent" valuation referred to is made by the society's consulting actuary, who is responsible for the original tables and estimates, and whose opinion is naturally merely corroborative of that of the actuary and secretary. The consulting actuary's statement that the sickness policies have no surrender value is taken as if he were a judge of the High Court.

4. The honorary treasurers' opinion as to the qualifications of a good committeeman is curious. It would condemn the present constitution of the British Medical Association and of every other representative body as governed by "a scratch lot." Judged by the only test possible of verification—that of regular attendance—only the metropolitan members attend with any regularity. The honorary treasurers rarely put in an appearance in my time. Dr. Herman's record in this respect is not stated in the report, and Mr. Swinford Edwards was not then treasurer. The chairman himself stated that the attendance of provincial members is immaterial. I go further, and say the same of the whole body as at present constituted. The business is entirely routine and formal, and could be done quite as well by the chairman and the medical examiner.

The question raised by Dr. Kirby and supported by me is not even referred to by Dr. Herman and Mr. Swinford Edwards. It is, What can be done to make the society more popular in the profession? At present it constitutes less than 10 per cent. of the whole number, in spite of the fact that nowhere else can a medical man obtain sickness insurance at such low rates. If they object to our proposals, what have they to suggest? Even this correspondence has done some good, as people have been writing to ask me the society's address.—I am, etc,

Portishead, June 11th. W. G. DICKINSON.

SIR,—When the above society was first established, some twenty-seven years since, it was thought that a large number of the medical and dental professions would be only too glad to avail themselves of its opportunities and benefit, especially in the annuity department, and thus provide for themselves, after the age of 65, when all benefit from the sickness assurance ceased. So few members, however, joined this branch that this department did not pay, and hence it was allowed to lapse, and no more annuitants taken. The same occurred with the life assurance department. The society simply became a sick society for the granting of sick pay in cases of sickness and accident to its members up to 8 guineas a week, to which it was increased at our last annual meeting from 6 guineas.

Our tables of rates were prepared by the late F. G. P. Neison, one of the most eminent actuaries of the day, and at the time, if anything, thought too low. Now they are said to be too high. One member stating "that the society is run on the strickest profit-making life assurance lines." And why should it not be so? It is also contended that the amount accumulated far exceeds any possible liabilities. I am not so sure of this, especially if we should be visited at any time by any serious epidemic.

Only last year the experienced sickness nearly exceeded that provided, especially in the half-pay part.

Our committee are approved and appointed at the annual general meeting, but are selected by the Committee of Management held at a meeting, previous to the annual meeting, at which they can be rejected and altered, and new names selected, by any members attending.

Very few members, however, take the trouble to attend, leaving the work for those who attend. As one of the Committee of Management, I am astonished to hear that no motion is allowed to be proposed unless it has the sanction of the chairman. Our chairman is a most tolerant, indulgent, and liberal-minded gentleman in every sense of the word, and acts most fairly in all the duties of his office. He even goes to the extent of asking if any member has anything to suggest or say on the subject of discussion before he expresses his own opinion. I cannot, therefore, see how the society can be called a one man society.

I quite agree with one of your correspondents that this society is of great importance to the profession, and that it is most discreditable that the annual increase of its members should not be greater. I also agree with the appointment of provincial members, but the difficulty is to get them to join. To spend the remainder of the 10 per cent management fund, after paying all necessary expenses of management which is now transferred to the different branches of the fund, were spent in advertising would be of very little service to us in increasing our members. Our society is well known through the medical press, and through the BRITISH MEDICAL JOURNAL in particular.

If we paid travelling expenses, and each member of the Committee of Management for each attendance, our funds I fear would be greatly run upon, and our increasing annual expenditure for sickness and accident (this last year amounting to the sum of £15,114) should caution us to be extra careful in our management, and husband our resources against any evil times of sickness, especially as so many old established insurance companies have amalgamated to reduce their expenses.

I am of opinion also that the appointment of local agencies would be beneficial, and if we resorted to the old custom of having a room at the annual meetings of the British Medical Association, and distributed our reports and circulars to the members present, also would be advantageous. I am aware this custom was given up as it was considered not to pay. At all events it would tend to keep the society before the medical profession. I fear the unsettled state of political affairs, and consequences of bad trade, etc., which has affected all classes of the community, more or less, and medical men most acutely in particular, is the chief cause of our trouble — am, etc.,

Reigate, June 7th. JACOB PICKETT.

SIR,—The letter of Drs. Herman and Swinford Edwards, and your leading article on insurance in this week's issue, draw attention to certain aspects of sickness and accident insurance for medical men which it is well to emphasize. In the Medical Sickness Society the profession possess a mutual friendly society which is well and economically managed, is financially strong, and which charges remarkably low premiums for the benefits offered. I have been a member of this society for fifteen years and I feel convinced that we are fortunate in possessing so zealous, painstaking, and unselfish a chairman and executive committee. I find that the claims of members in case of sickness are dealt with in a prompt, just and generous manner. It is therefore very regrettable to find that a larger proportion of the medical and dental professions have not availed themselves of this excellent opportunity of making some provision for themselves against the chances of accident or disease. Many medical men have unfortunately, I find, been induced by the ingenious arguments of plausible and persistent agents to take out policies in certain proprietary companies where the premiums are at least 30 per cent. higher for the same kinds of benefit. Still more astounding, in my opinion, is the popularity of a certain scheme of fever and accident insurance offered to subscribers by an otherwise serious and valuable medical periodical. The policy issued under this scheme gives such limited and inadequate protection, that I venture to say, it would not, on its own merits, appeal to any reasonable man. And yet it is generally known that hosts of medical men have become subscribers to the periodical on account of the tempting offer of a free policy of insurance against fever and accidents. I feel so impatient about this want of discrimination and common sense on the part of my professional brethren, that whenever the subject of this fever and accident policy is brought up, I am in the habit of remarking, that I do not like to get a teapot thrown in with a pound of tea, but prefer the value of the purchase money to be in the tea itself, and that when I do require a teapot I buy one in the open market of a size and quality to suit my own tastes and requirements.—I am, etc.,

London, E., June 13th. EDMUND HAY.

The Services.

ROYAL ARMY MEDICAL CORPS (TERRITORIAL).

LOWLAND MOUNTED BRIGADE FIELD AMBULANCE.

A SERIES of three week-end camps has been held by this unit at Darnley Rifle Range, about five miles from the Glasgow head quarters. About thirty men attended each week end, and received practical instruction in pitching tents and marquees, building field kitchens, digging latrines, preparing destructors, etc. Special instruction was given in cooking, and a lecture on sanitation was delivered each week on Sunday. The men were most fortunate in having excellent weather, with the exception of the first Sunday. Valuable instruction was afforded in work which could otherwise only be learnt at the annual training in camp, and the men with this preliminary training will profit much more during camp.

The camp of the unit begins on June 18th at Biggar, Lanarkshire. The Lowland Mounted Brigade, consisting of four regiments of yeomanry, with the transport and supply column and field ambulance, will be encamped for fifteen days, the units being located at Biggar, Lanark, Symington, and Douglas, and a most instructive programme of combined training has been arranged. The field ambulance is under the command of Lieutenant-Colonel R. T. Halliday, with Major H. Wright Thomson, second in command.

GLASGOW UNITS.

The annual church parade of the Glasgow units of the R.A.M.C.(T.) took place on the 12th June in the Bute Hall of Glasgow University, Principal Sir Donald MacAlister, K.C.B., and Professor Stewart, D.D., taking part. The units represented were the Lowland Mounted Brigade Field Ambulance, the 1st and 2nd Lowland Field Ambulances, and the third and 4th Scottish General Hospitals. The Rev. Thos. Adamson, D.D., Corps Chaplain, preached the sermon, and a collection was taken on behalf of the Queen Victoria Memorial School for the Sons of Scottish Soldiers and Sailors.

Obituary.

ELIZABETH BLACKWELL, M.D.,

CONSULTING PHYSICIAN, NEW HOSPITAL FOR WOMEN.

DR. ELIZABETH BLACKWELL died at Hastings on May 31st, in her ninetieth year, after a long illness, which would seem to have originated in a fall while on a visit to Scotland in 1907. She was the first woman to be admitted to the British *Medical Register*, and her success is the more notable in that, apart from difficulties brought about by the total novelty of the idea of a woman studying medicine, she had to contend with one experienced by many male students, namely, lack of means. She was the daughter of a Bristol sugar refiner, who, emigrating to the United States in 1832, died a few years later, leaving hardly any fortune behind him and a family of nine children, headed by three girls, of whom Elizabeth Blackwell, then aged 17, was the youngest. To keep the family going this trio opened a small school, carrying it on successfully for four years, until a brother was old enough to begin a business life. Elizabeth Blackwell was then persuaded, somewhat against her will, to see if medicine did not offer her a career, and finally was accepted as a pupil at the medical school carried on at Geneva University in the State of New York. She was admitted to the school as the result of a vote among its students, who, from beginning to end, treated her with admirable courtesy. On one occasion the anatomy teacher warned her to absent herself during a particular dissection, but she replied that she was a student, and a student only, and would attend it, unless her fellow-students wished her not to do so. The result was that she took her place as usual, her fellow-students carefully abstaining from any kind of conduct which might possibly accentuate the awkwardness of the situation. On leaving this school with the degree of M.D. in 1849, she spent two years in Europe, dividing her time between St. Bartholomew's, where she was welcomed by the then

dean of the school, the late Sir James Paget, and the Maternity Hospital at Paris. While at the latter she had an unfortunate accident, losing the sight of one eye, which became infected while she was treating a patient with gonorrhoea. This put an end to her hopes of figuring in surgery rather than in medicine.

On returning to the United States she began to practice in partnership with one of her sisters, eventually establishing a dispensary out of which grew the New York Infirmary for Women. She also gave lectures to women on the laws of life in reference to the physical education of girls. In 1859 she paid a further visit to England, during which she lectured on medicine as a profession for women. Among one of her audiences was Miss Garrett, now Mrs. Garrett-Anderson, who shortly afterwards began, in her turn, the study of medicine, qualifying as the first woman doctor of English education in 1865. Just before her return to America it was suggested to Miss Blackwell that she should get her name inscribed in the recently instituted *Medical Register*, and but for this almost accidental circumstance she might not have spent the last forty years of her existence in this country. She only returned to it after some eight years' further work in America, during which she played an active part in the organization of women's nursing during the civil war. One outcome of this work was the establishment of a medical school for women in which Miss Blackwell, who, in her visits to England, had come under the influence of Miss Nightingale, held the Chair of Hygiene.

When she finally settled in England she continued to co-operate in the movement which has since led to the frank recognition of the medical profession as a proper sphere for women, and to the establishment, as we recently pointed out, of as many as 476 registered medical women in practice in England alone.

For a long time Dr. Blackwell carried on an active practice partly in London, partly in Hastings. Of late years she had not been seen much in London, but she was always certain to be acclaimed at the London (R.F.H.) School of Medicine for Women, where at one time she lectured on gynaecology. She also held, up to the time of her death, a position on the consulting staff of the New Hospital for Women. She was the author of a good many publications; among the more important being *The Laws of Life in Relation to the Physical Education of Girls*, *The Human Element in Sex*, *The Religion of Health*, and *The Moral Education of the Young in Relation to Sex in Medical and Social Aspects*.

There are two points never to be forgotten in speaking of Dr. Elizabeth Blackwell: one is that, although much of her life was passed in America, she did not go to that country until she was 11 years old, and always regarded herself as English. The second is that, although never married, she was, and ever remained, one of the most womanly of women. It was, indeed, her womanly character, coupled with her intense earnestness, which mainly enabled her to overcome the difficulties in her path, and won for her personally, if not for her ambitions in respect of women as a whole, the esteem and good wishes of all possible opponents. Although she appears to have turned to medicine with some reluctance in the first place, she soon acquired a belief that she had a definite "call," and retained this belief to the end.

The interment took place at Kilmun, and the funeral service was attended by representatives of various medical and other societies connected with the work in which Dr. Blackwell took so prominent a part.

Dr. John Henderson, of Wakefield, died on May 22nd, after an illness extending over six months. He had recently undergone a serious operation which, however, failed to eradicate the disease. Dr. Henderson, who was in his 54th year, graduated B.A. in the Royal University of Ireland in 1878, and M.A. in 1882; he studied medicine in the University of Edinburgh, and in 1888 received the degrees of M.B. and C.M. from that University. In 1893 he took the diploma of D.P.H.Cambridge. He was engaged in practice in Wakefield for many years, and took a keen interest in public affairs, serving for some time on the Wakefield City Council and its Education Committee; recently he had been made a Governor of the Educational Charities.

The death occurred on May 22nd of Dr. Charles Terry, of Bath, one of the oldest members of the medical profession in the West of England. He became M.R.C.S. in 1849, and L.S.A. in 1850. He first went to Bath as Resident Medical Officer of the Mineral Water Hospital. He retired from practice a good many years ago, but remained physically and mentally strong until comparatively recently.

Dr. James Finlay, of Helensburgh, died on May 25th, in his 75th year. He was the son of a Glasgow merchant, and received his training in the University of Glasgow. After being in practice in Stranraer for a time he removed, about the year 1862, to Helensburgh. For over twenty years he was parish doctor under Row Parochial Board, but he resigned this position about sixteen years ago. Some ten or twelve years ago he retired from active practice. Dr. Finlay was widely read, and to the end was a diligent student of the classics. For some years before his death he interested himself in farming. Dr. Finlay leaves a widow. His only surviving brother, Dr. David Finlay, is Professor of the Practice of Medicine in Aberdeen University.

The death is announced of Dr. David Cowie, one of the best known practitioners in the city of Glasgow. He had been in failing health for some time, and had been laid aside from duty for about three months. He was born in Nova Scotia, where his father, a Scotsman and an M.D. of Glasgow, was in practice. The father sent his son to Glasgow and apprenticed him to a firm of engineers, but the young man's proclivities towards medicine were too strong; he entered the medical faculty of Glasgow University, and graduated M.B., C.M., in 1874. For thirty-two years he was parochial medical officer, first of the Barony Board, and after the amalgamation of the Barony and City Parochial Boards, of the Glasgow Parish Council. He acquired an extensive private practice, and was much respected as a practitioner and as a man. He took a keen interest in the Volunteers and attained the rank of Surgeon-Lieutenant-Colonel to the Glasgow Highlanders, a corps which he joined in 1878; some time ago he received the long service medal. In his younger days he was a notable swimmer and skater. Dr. Cowie was a most honourable man, and had a high standard of medical conduct; he was a genial and sympathetic companion, an excellent teller of stories, and on several medical questions expressed his views in vigorous verse. Dr. Cowie, who was about 60 years of age, leaves a widow and one daughter.

Two more Crimean veterans have passed away, in the persons of Deputy Surgeon-General James Ross, M.B., late of the Indian Medical Service, who died in London on April 10th, and of Surgeon-Major Ormsby Bowen Miller, retired Army Medical Department, who died on April 8th. Deputy Surgeon-General Ross joined the Madras Medical Department as an Assistant Surgeon, January 29th, 1857, and became Deputy Surgeon-General, June 16th, 1885, in which year he retired from the service. During the Crimean campaign in 1854–5 he served in the Royal Navy in the operations in the Black Sea, and was at the siege and fall of Sebastopol and at the capture of Kertch and Kinburn, receiving a medal with clasp and the Turkish medal. He had also a medal for the Indian Mutiny campaign in 1857–60, during which he was present at the affair of Poon Poon River. Surgeon-Major Miller entered the Army Medical Service, March 28th, 1854, and retired therefrom in 1875. In the Crimea he was present at the battles of the Alma and Inkerman and at the siege and fall of Sebastopol. He was granted a medal with three clasps, the Turkish medal, and the 5th Class of the Order of the Medjidie.

Surgeon-Major-General John George Faught, M.R.C.S., died at Southsea, on June 12th, in his 78th year. He was a son of the late Rev. G. S. Faught, Rector of Bradfield St. Clare, Suffolk; was educated at King William's College, Isle of Man, and entered the Army Medical Department as an Assistant Surgeon, January 5th,

1855; becoming Surgeon, November 9th, 1867; Surgeon-Major, March 1st, 1873; Brigade-Surgeon, April 17th, 1880; Deputy Surgeon-General, September 3rd, 1884; and Surgeon-Major-General, November 13th, 1890. He retired from the service, December 15th, 1892. He was employed as Sanitary Officer, at Cape Coast Castle, during the Ashanti war in 1874, receiving a medal. He was also in the Afghan war in 1878-80 (medal); in the Egyptian war in 1882 (medal and Khedive's bronze star); in the Bechuanaland Expedition in 1884-85, as Principal Medical Officer, for which he was honourably mentioned; and again as Principal Medical Officer in the operations in Zululand in 1888. He was appointed an Honorary Surgeon to Queen Victoria in 1897.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Professor Edlefsen, for many years Extraordinary Professor at Kiel and Director of the Medical Poliklinik of that city, aged 68; Dr. Stolpe, Health Privy Councillor and the oldest doctor in Germany, aged 94; Dr. Bauby, *agrégé* Professor in the Medical Faculty of Toulouse, and surgeon to the hospitals of that city; Dr. Oscar Riegner, for many years head of the Surgical Department of the Allerherligenhospital at Breslau, aged 66; Professor Vittorio Mibelli, Director of the Clinic of Dermatology and Syphilis in the University of Parma. Dr. Andrew H. Smith, one of the founders of the New York Post-Graduate Medical School, and one of the physicians who attended the late President Garfield, aged 73; Dr. George Krich, the first editor of the *St. Petersburger medicinische Wochenschrift*, in his 30th year; Dr. Eugene Hodenpyl, for many years pathologist to the Roosevelt Hospital, and sometime President of the New York Pathological Society, aged 46; Dr. F. Tilden Brown, Surgeon to the Bellevue Hospital, New York, aged 55; Dr. James Eisenberg, a well-known gynaecologist, aged 48; and Dr. John Landström, Lecturer on Surgery at Stockholm.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following degrees have been conferred:

M.D.—H. L. P. Hulbert, Trin.; H. L. Wilson, Selwyn H.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

Anatomical Department.

MR. D. E. DERRY, M.B., Ch.B.Edin., has been appointed Assistant in the Department of Anatomy and Curator of the Anatomical Museum at University College for the session 1910-11. Mr. E. K. Martin, M.B., B.S., F.R.C.S., has been appointed Demonstrator in Anatomy for the session 1910-11.

VICTORIA UNIVERSITY OF MANCHESTER.

IT has already been announced that in connexion with the Diploma in Public Health special certificates have been instituted in Factory Hygiene and School Hygiene, and to complete the arrangements necessitated by the institution of these certificates, the following appointments have been made: Mr. A. E. Brindley, B.Sc., M.D., D.P.H., has been appointed to assist Dr. Tattersall in the subject of Public Health Administration; Mr. Meredith Young, M.D., D.P.H., has been appointed Special Lecturer in School Hygiene, and Mr. T. M. Legge, M.A., M.D., D.P.H., Special Lecturer in Factory Hygiene.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN Ordinary Council was held on June 9th, 1910, Mr. H. T. Butlin, President, in the chair.

Queen Alexandra.

A letter was read from Earl Howe, G.C.V.O., Lord Chamberlain to Queen Alexandra, conveying Her Majesty's thanks for the address of condolence of the President, Vice-Presidents, and Council of the College.

Examination Results.

At the recent examination in Anatomy and Physiology for the Fellowship, 36 candidates were approved.

At the first examination for the Fellowship, 22 candidates were found qualified for the diploma.

Examinerships.

As no vacancies had occurred on the Board for the Membership and Fellowship, and Diploma in Public Health, all the previous examiners were re-elected.

Thanks of the Council.

The thanks of the Council were given to Sir Henry Morris, Bart., for his services as the Representative of the Council on the General Medical Council.

The thanks of the Council were likewise given to the Board of Guardians of the Parish of St. Marylebone for the gift of a series of old surgical instruments.

Congress of Obstetrics and Gynaecology.

Dr. Amand Routh was appointed the Representative of the College at the Fifth International Congress of Obstetrics and Gynaecology to be held at St. Petersburg in September next.

Election of Council.

The President reported that a meeting of the Fellows would be held at the College on Thursday, July 7th, for the election of four Fellows into the Council of the Council in the vacancies occasioned by the retirement in rotation of Mr. J. H. Morgan, C.V.O., and Mr. C. B. Lockwood (Mr. Morgan not offering himself for re-election), by the death of Mr. H. H. Clutton, and by the resignation of Mr. G. A. Wright.

Final Fellowship Examination.

The following candidates have been approved at the examination indicated:

FINAL FELLOWSHIP.—C. Dykes, Captain, I.M.S., T. S. Novis, Captain, I.M.S., T. J. C. Evans, Lieutenant, I.M.S., E. H. B. Oram, A. J. M. Wright, L. J. Austin, B. T. Lang, M.A., K. H. Digby, W. B. Griffin, H. F. Vellacott, W. A. Campbell, D. Davies, W. R. Douglas, P. S. Vickerman, A. M. Dick, Lieutenant I.M.S., F. Guevara-Rojas, C. A. Joll, B.Sc.Lond., L.D.S., R.C.S.Eng., H. Buck, R. H. Campbell, J. Eadie, R. Jamison, G. H. Usher, and P. P. Bharucha and W. B. Johnson.

Medico-Legal.

WORKMEN'S COMPENSATION ACT.

Is an Assault an Accident?

IN a case heard in the Irish Court of Appeal, before the Lord Chancellor, Lord Justice Holmes, and Lord Justice Cherry, it appeared that the plaintiff, Robert Anderson, was employed as a gamekeeper, and on September 1st last went out in discharge of his duty, and about 10.30 p.m. he was set upon by three men, and, as a result of their violence, was incapacitated for a period of about ten weeks. The county court judge, before whom the case had come in the first instance, found that the injuries were received in the course of, and arose out of, his employment, but held that they did not constitute an accident within the meaning of the Workmen's Compensation Act. This judgment has now been reversed, the Lord Chancellor and Lord Justice Holmes both being of opinion that the occurrence constituted an accident within the meaning of the statute. Lord Justice Cherry, however, did not concur with this opinion, on the ground that such injuries as were inflicted were not unforeseen or undesigned, and that the absence of design or intention was the essential element of an accident.

Frostbite.

An action embodying legal points of some nicety was recently tried in the Sheriff Court of Fort William by Allan MacDougall, surfaceman, against the North British Railway Company, concluding for compensation under the Act. On February 14th last pursuer was engaged during the night keeping clear the railway points at Glennan, a task rendered necessary in consequence of the arctic severity of the weather. While attending to his duties the fingers of both his hands were frostbitten to such an extent as to incapacitate him from continuing at his usual occupation. So far as is known, the point has not yet or arisen, or been decided, as to whether injuries from frostbite can "arise out of and in course of a workmen's employment," and can therefore be regarded as an "accident" under the Act. After the case had been debated before him, Sheriff Davidson indicated that he had no hesitating in holding in the affirmative. A remit was accordingly made by him to Dr. Miller, Fort William, as medical referee for the district, to decide whether the pursuer had suffered injury to the extent stated in the latter's condescendence; and, if so, to what extent his wage-earning capacity had been affected. The pursuer has now been examined by the medical referee and an award issued to the effect that he is entitled to compensation at the full rate of half wages up to the date of examination and quarter wages thereafter.

Compulsory Operations.

In a recent Scottish case it appeared that a plasterer was injured in the respondent's employment in October, 1905, and was paid compensation at the rate of £1 per week. In June, 1907, the employers presented an application for review of the weekly payment, but on a report of the medical referee—that Carroll was still suffering from severe sciatica due to the injury—the application was dismissed. In December, 1909, Carroll voluntarily underwent an operation for nerve stretching in the Royal Infirmary, Glasgow, under chloroform. The

operation was not successful, and the surgeon recommended a further operation. Carroll declined to undergo a further operation, and the employers now asked the Court to suspend the weekly payments of compensation in respect that, having undertaken to undergo the operation recommended by the referee, he now refused to do so. Carroll thereupon lodged a certificate from another doctor stating that he was unfit to undergo the operation, that such an operation would be of no avail, and that he was permanently injured. The Sheriff-Substitute then remitted to Dr. D. C. M'Vail (the medical referee) to report on the nature of the operation and the fitness of Carroll to undergo it, and the questions in the case were (1) whether the Sheriff-Substitute was entitled to make that remit, and (2) whether Carroll was bound to submit to the operation if the medical referee advised it. The Court answered the first question in the negative, and found it unnecessary to answer the second question. The refusal of the Court to allow the Sheriff to make the remit is probably founded on the principle which the English Court of Appeal has laid down with regard to compulsory operations. It has been held that if a workman can find a medical practitioner who will say that he ought not to undergo an operation, the Court will not compel him to do so. Such a certificate having been produced to the Sheriff, he became powerless to order the man to undergo any further operation, or to compel him to do so by reducing the amount of the compensation.

Phthisis or Accident.

In a case at North Shields it appeared that the applicant was injured by an accident which happened to him in August, 1909. He was then employed in building a wall, when a batten slipped or tipped up, and he was thrown to the ground, a distance of 8 ft. or 9 ft., bringing with him a number of bricks which fell upon him. He injured his ankle, hip, and right side. The material point was the injury to his right side. His case was that that injury had resulted in phthisis from which he was suffering. The case for the respondents was that the phthisis was not the result of the accident. The applicant was so ill that he was not able to appear in court, and he had been examined by commission. Three weeks after the accident he developed pleurisy. Afterwards phthisis developed. This was not diagnosed with certainty until February, 1910. It was suggested that as the result of injury to the side, which developed pleurisy, the resistance of the lung to the germs of the tuberculous disease was lowered, and the result was that phthisis had developed, and developed in a very rapid way. The phthisis developed at the base of the lung, on the same side as the injury. In practice it was found that the seat of phthisis was usually the apex of the lung in more than 95 per cent. of cases. The applicant, who was 42 years of age and past the age when phthisis usually developed, was a very healthy man up to the time of the accident, having never suffered from an illness before. He had had ten children, all healthy, and himself was one of a family of twelve who were healthy. There was no history of phthisis in the family. The only reasonable conclusion was that the phthisis was brought on by lowered resistance to the disease as the direct consequence of the accident. On the part of the respondent it was contended that pleurisy developed too long after the accident to have anything to do with it.

Dr. James Harrison, who said he acted as the family doctor, said the applicant had been a very strong, healthy man, somewhat above the average in physique. The pleurisy was the direct result of the accident. Dr. H. Stephens, surgeon at North Shields Dispensary, stated that when he first saw the patient on October 8th he was suffering from pleurisy, the result of the accident. Before the man went to Newcastle Infirmary he did not diagnose phthisis, though he suspected it from the progressive emaciation of the patient; he had lost about 4 st. in weight. On December 14th, he and Dr. Younger made an examination to ascertain the cause of the pleurisy. It was decided to call in a consultant, as there was something underlying the pleurisy. Witness was satisfied that the pleurisy was traumatic—due to the accident. Dr. Fraser expressed the opinion that pleurisy was set up by the injury to the chest, and later resulted in phthisis.

This concluded the evidence for applicant. For the defence Sir T. Oliver said he examined the patient on March 22nd. He was suffering from tuberculous disease. If the pleurisy had been due to the accident in August, he would undoubtedly have expected it to appear earlier than twenty-six days afterwards. He did not think the man's present condition was due to the accident. Dr. Younger, of Newcastle, gave evidence to the same effect. Dr. Beattie, Newcastle, who was called into consultation by Drs. Stephens and Younger on December 28th, said he could not imagine an interval of three weeks occurring between an injury to the chest wall and any signs of pleurisy appearing. Questioned as to whether it was not true that phthisis seldom occurred after the age of 42, witness replied that the reason for this was that the average age was 35, and the majority of people died before that age. Only on that hypothesis was it right to say that phthisis seldom occurred after 42.

His Honour gave judgement for the amount claimed.

Under the will of the late Mr. Thomas Horne, of Warwick, the Birmingham Eye Hospital inherits one third of the residuary estate, the amount it will receive from this source being apparently about £12,000.

Public Health AND POOR LAW MEDICAL SERVICES.

REPORTS OF INQUIRIES BY MEDICAL INSPECTORS OF THE LOCAL GOVERNMENT BOARD.

Bradford Rural District (by Dr. R. W. Johnstone, New Series, No. 22).—The ground for the inquiry was the repeated occurrence of typhoid fever from year to year at Jennet Hill and Stanford Dingley in the rural district of Bradfield, about seven miles from Reading. Since 1896 there had been notified 16 cases of typhoid fever from Jennet Hill—a collection of nineteen houses, ten of which are in one row. It is probable that 11 other cases were infected from the same locality. Nearly all the ten houses in the row were at one time or another affected. There are no drains at the houses, slops are thrown on the gardens, and there is a pail closet for each house. The contents of the pails are emptied on to heaps in the gardens and covered with a little soil. The circumstances of the continued prevalence of the disease suggested the presence of one or more "carriers," and endeavours were made to obtain specimens of the blood, faeces and urine of the inhabitants. In spite of all the influence that could be brought to bear, including pecuniary inducement, only a small number would permit samples to be taken. In the end samples of faeces and urine were obtained from eighteen persons, and of faeces alone from one person. Four of the samples of faeces were found to contain the *Bacillus typhosus* in large quantities. It was not recovered from any of the samples of urine. Samples of blood were obtained from fifteen persons residing in the row of houses, and in six instances a positive reaction was obtained with Widal's test, while one gave a partial reaction.

Bedwellty Urban District (By Dr. J. Spencer Low, New Series No. 23).—No reason is given in the report for Dr. Spencer Low's inquiry. In ten years the population of the Bedwellty Urban District has been nearly trebled, and is now about 20,000. The sewage from nearly the whole district enters the rivers Sirhowy and Rhymney in a crude state. On the completion of the trunk sewer of the Western Valleys Sewerage Board, the pollution of the river Sirhowy will be prevented, but at present there is no scheme for the Rhymney river. In some parts of the district there are privy middens and cesspits, but the more recently erected houses are provided with waterclosets. There is a lack of houses with consequent overcrowding, some of the older houses are back-to-back, back-to-earth, or cellar dwellings. The water supply of the district, as a whole, appears to be of a doubtful character, and in some parts is insufficient in quantity. A temporary isolation hospital of galvanized iron, lined internally with wood, was erected in 1902. On the basis of 2 000 cubic feet per patient there is accommodation for four persons at one time. In 1902 it was occupied by five small-pox patients, and in the seven succeeding years there was admitted a yearly average of five patients suffering from typhoid fever. Other diseases have not been treated in the hospital. The infantile mortality-rate in 1908 was equal to 190 per 1,000 births, and Dr. Low advises the district council to adopt the Notification of Births Act, 1907, in connexion with which he suggests that a competent woman or women should be appointed who, under the direction of the medical officer of health, could give suitable advice to mothers concerning the care and nourishment of children. Among other recommendations are the appointment of a whole-time medical officer of health in combination with neighbouring districts. Dr. Low considers that the necessary personal supervision of the routine work in the health department of a populous district cannot, as a rule, be conducted effectively by a medical officer of health in private practice.

Pontefract Borough (by Dr. Reginald Farrar, New Series, No. 24).—The grounds for the inquiry had reference to the arrangements for the discharge of the duties of inspector of nuisances. The water supply of the borough appears to be satisfactory, the consumption amounting to a daily average of 26 gallons a head. Water is laid on to the modern houses, but some of the older courts are supplied by standpipes. The town is properly sewered, and the sewage is treated at outfall works, which were constructed in 1903. After being mixed with lime the sewage is led to two settling tanks, whence it passes through one or other of four bacterial filter beds of crushed clinker and sand, graded and 5 ft. in depth. The effluent, which appears to be satisfactory, is passed into the Wash Beck, and by way of the Goole and Knottingley Canal flows to the River Ouse. About two-thirds of the houses are provided with waterclosets, and the pail closets or privy middens at the remaining houses are gradually being converted to waterclosets. A Meldrum's refuse destructor has been in use since 1907. An isolation hospital, with accommodation in two pavilions for 20 patients, was opened in 1902, and serves jointly the borough of Pontefract, the Pontefract rural district, and the Knottingley urban district. A separate iron and wood hospital for small-pox is used jointly with several other districts. Dr. Arthur Hillaby, who is engaged in general practice, has been medical officer of health since 1895, and in Dr. Farrar's opinion carries out his duties in a satisfactory manner, and gives excellent advice to the corporation. The inspector of nuisances formerly had duties allotted to him other than those connected with his office, but in consequence of representations made by the Local Government Board he now devotes his whole time to the duties

of inspector of nuisances. The infantile mortality rate in 1908 was equal to 131 per 1,000 births, and the mean rate in the seven years 1902-8 was equal to 148 per 1,000. Among Dr. Farrar's recommendations is the adoption of the Notification of Births Act, 1907, and the making of arrangements proper for the education of mothers and those having charge of infants.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Virfield Urban District.—The birth-rate in 1909 was 22.7 per 1,000, and the adjusted death-rate 16.1 per 1,000, based on an estimated population of 11,094. The infantile mortality-rate was equal to 115 per 1,000 births, the rate among illegitimate children being exactly double that which was recorded among the legitimate. The medical officer of health, Dr. Leslie J. Milne, refers to the improvement in the ventilation of the sewers of certain portions of the district since Webb's ventilating lamps have been fixed. An outbreak of diphtheria in the latter part of the year is said to have had some connexion with the Huddersfield sewage works, which were opened in June, 1909. The odours from the works, especially during July and August, were said to have been very offensive, and many people declared that it was impossible at times to open either their doors or windows. It is to be regretted that the district council has not yet adopted Dr. Milne's advice as to the testing by smoke of the drains in the district. Of the 18 cases of scarlet fever notified during the year, 16 were treated in the isolation hospital, and for the third year in succession there has been no death from this disease, and there have been no return cases.

Guildford Borough.—The population of the borough of Guildford as at present constituted was estimated in the middle of 1909 to be 23,000. The birth-rate was 22.3 per 1,000, and the adjusted death-rate 10.6 per 1,000. The remarkably low infantile mortality-rate of 54 per 1,000 births was recorded. The medical officer of health, Dr. R. W. C. Pierce, does not state in Table V the number of illegitimate births and deaths, so that the relative mortality among legitimate and illegitimate children cannot be given. A large amount of systematic inspection has been carried out in the borough during the year. Among 641 houses inspected, as many as 561 had some sanitary defect. Dr. Pierce considers that, as practically the whole of these defects have been remedied without serious protest, the standard he adopted can hardly be considered as unreasonable. When the Midwives Act came into force the district medical officers of health in Surrey acted as local inspectors under the county council, but this arrangement has now ceased, and the superintendent of the county nursing association has been appointed to act as inspector for the whole county. Dr. Pierce considers that this arrangement will not be beneficial to the public health of the district, as there must necessarily be greater delay in dealing with cases of puerperal fever as they arise, and the midwives will be more likely to respond to the advice of the medical officer of health than to that of a non-medical lady inspector.

Medical News.

DR. J. M. MASON, Consulting Medical Officer to the Dominion of New Zealand, was, on June 8th, called to the Bar by the Benchers of Gray's Inn.

AT the meeting of the Senate of the University of London, on June 15th, Dr. M. J. M. Hill, F.R.S., Astor Professor of Mathematics, was re-elected Vice-Chancellor.

AT the annual meeting of the Royal Society of Medicine, to be held on July 1st, at 5 p.m., Sir Henry Morris, Bart., F.R.C.S., will be proposed by the Council for election to the office of President in succession to Sir William Church.

THE midsummer address to the Abernethian Society of St. Bartholomew's Hospital will be delivered this year at 8.30 p.m. on Thursday next, June 23rd, by Dr. Norman Moore, who has chosen for his subject St. Bartholomew's Hospital in the sixteenth century.

THE dates of the professional and Gaskell prize examinations of the Medico-Psychological Association have been altered to July 6th and 7th respectively. The former will be held in London, Edinburgh, and Dublin, and the latter in London only.

THE Inter-hospital Sports will take place at Stamford Bridge on Friday, June 24th. The prizes will be presented by Mrs. Anthony F. Voelcker. Entries are above the average, both in number and quality, and a really excellent afternoon's sport is anticipated.

THE National Association for the Prevention of Consumption has appointed a special appeal committee to collect funds for an educational campaign, including travelling exhibitions, popular lectures, an information bureau, and the distribution of literature. The annual expense is estimated at £5,000.

THE Cavendish Lecture of the West London Medico-Chirurgical Society will be delivered at the Town Hall, Kensington, on Friday, July 1st, at 8.15 p.m., by Sir Thomas Oliver, of Newcastle-on-Tyne. The subject of the lecture is empyema and some problems connected therewith. It will be followed by a conversazione.

SIR ALFRED KEOGH, K.C.B., will present the prizes at St. Thomas's Hospital Medical School, of June 23rd, at 3 p.m. On the same day, and at the same hour, Dr. H. A. Miers, F.R.S., Principal of the University of London, will distribute the prizes at the London (Royal Free Hospital) School of Medicine for Women. The prizes of Guy's Hospital will be distributed by Professor Howard Marsh on July 7th.

PROFESSOR and Mrs. Karl Pearson and the staff of the Biometric and Galton Eugenics Laboratories will be at home at University College, Gower Street, on Friday evening next, June 24th. The Senate of the University of London has made a grant of £40 a year for four years to the publication department of Applied Mathematics and the Eugenics Laboratory at University College, and the sum of £50 has been presented to it by an anonymous donor.

MR. NORMAN HAY FORBES, F.R.C.S., F.R.S.Edin., has written a pamphlet drawing attention to Coulsworthy water and the district of Devonshire in which this spring lies. We gather that it is a very soft water, free from organic pollution and containing very little mineral matter. The author compares it with Evian water, though its contained solids are lower, and offers reasons for believing that it is of therapeutic value as an eliminant in various conditions of autointoxication and in organic dyspepsias.

THE summer session of post-graduation classes at the Glasgow Royal Infirmary has just been concluded, and the syllabus is now being drawn up for the autumn course. This course is to be held during the month of September, and the introductory lecture will be given by Sir James Barr, of Liverpool. The classes will be similar to those of former years, and include instruction in clinical medicine and clinical surgery, haematology, bacteriology, vaccine-therapy, diseases of the ear, eye, throat and nose, skin, gynaecology, electro-therapy, etc. A copy of the syllabus may be had on application to Dr. Thom, Superintendent at the Royal Infirmary.

WHEN publishing (June 11th, p. 1446) the memorial of the National Committee for the Prevention of Destitution criticizing certain provisions of the Midwives Act Amendment Bill, 1910, especially those affecting the payment of medical men called in by midwives under the rules of the Midwives Board, it should have been stated that at the last meeting of the National Committee to Promote the Break-up of the Poor Law it was resolved to give it this new name. In recommending that the authority responsible for payment should not be Poor Law guardians, the committee is supporting the recommendation made by the witnesses representing the British Medical Association, the Society of Medical Officers of Health, the Municipal Corporations Association, the Lancashire County Council, the Nottinghamshire County Council, the Manchester Town Council, the Midwives' Institute, and the Central Midwives Board. The Committee urges that Clause 17 of the bill should be amended by substituting the words "local supervising authority" for the words "board of guardians for the union," and that the reference to parochial relief or relief on loan should be omitted. While agreeing that the bill would be greatly improved by this alteration, we venture to express the hope that no attempt will be made to wreck it, since it is in many other respects satisfactory.

MR. W. H. LEVER will preside over the congress of the Royal Institute of Public Health, to be held at Birkenhead, from July 18th to 23rd. There will be six sections, as follows: *Preventive Medicine and Vital Statistics*—President: Sir Lauder Brunton, Bart., M.D., F.R.S.; *Chemistry, Bacteriology, and Meteorology*—President: Sir William Ramsay, F.R.S.; *Industrial and School Hygiene*—President: Sir Thomas Oliver, M.D.; *Municipal and County Engineering*—President: Sir Alexander R. Binnie; *Comparative Pathology and Veterinary Hygiene*—President: Sir John McFadyean; *Town Planning and Municipal Architecture*—President: Mr. Henry Vivian, M.P. There will also be a ladies' conference on domestic hygiene; child study and social economy, presided over by Viscountess Grosvenor. The Earl of Meath will open a discussion on the effect of present educational and social influences on the moral fibre of children. A discussion on the relation of epilepsy to crime will be opened by Dr. Dalzell; on nervous strain and modern advertising methods by Dr. Richard Evans; on the nationalization of the public health service by Professor B. Moore, and on State feeding of school children by Mr. Councillor Pritchard. The honorary secretary of the congress is Dr. R. Sydney Marsden, from whom, at the Public Health Department, Town Hall, Birkenhead, further particulars can be obtained.

Letters, Notes, and Answers.

Communications respecting Editorial matters should be addressed to the Editor, 429, Strand, London, W.C.; those concerning business matters, advertisements, non-delivery of the Journal, etc., should be addressed to the Office, 429, Strand, London, W.C.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

Aero asks (1) the number of Pitcairn Islanders at the present day; (2) whether the Pitcairn Islanders, the descendants of the mutineers of the *Bounty*, are vaccinated or not; (3) in what animals in confinement has dental caries been found to occur.

Pitting after Herpes.

S. A. asks for suggestions regarding a patient in whom the forehead and the upper part of the nose is greatly disfigured through pits following a severe attack of shingles.

Paralysis Agitans.

P. A. would be glad to know if any relief to pain can be expected from tenotomy in this disease. He has a patient who suffers greatly from excessive spasm of the tendo Achillis and peronei, but can find no reference to the effect of division of tendons, which seems a reasonable method of relief.

The Responsibility of Anaesthetists.

Letheon asks for information on the three following questions regarding responsibility for death under an anaesthetic: (1) The anaesthetist on the staff of an infirmary administers a general anaesthetic in the infirmary. (2) He administers a general anaesthetic for a surgeon in private practice. (3) He removes tonsils and adenoids in private, for which he gets a medical practitioner to administer a general anaesthetic.

*** Our correspondent does not say whether he means "legal" or moral responsibility. The legal aspects of the questions he asks are somewhat complicated. (1) An anaesthetist, being a duly qualified medical man attached to the staff of a hospital, is legally responsible for the proper conduct of the administration of all anaesthetics, when he is the actual administrator or is supervising the administrator, the latter being *in statu pupillaris*. If a fatality occurred, the staff anaesthetist would have to show that the death was not due to incompetence or carelessness, and was not in the ordinary sense of the word "preventable." (2) In private practice the anaesthetist is undoubtedly responsible, although the surgeon cannot divest himself of his general responsibility as regards the patient and the operation. The anaesthesia being ancillary to the operation, the surgeon arranges with a man whom he regards as competent, and, if the patient accepts his arrangements, the anaesthetist assumes the responsibility of carrying through the anaesthesia in the manner best calculated to promote the patient's safety and allow due performance of the operation. If the anaesthetist is called in as an expert, especially if his attendance is asked for by any one other than the surgeon, he accepts all responsibility as regards the patient and the surgeon. In the former case, if the surgeon desires an anaesthetic or the adoption of a method which the anaesthetist regards as unsuitable, the latter must, after consultation with his colleague, either accept his view or withdraw from the case. He cannot avoid responsibility by stating that he did what the surgeon directed if he did so against his own judgement. (3) A medical practitioner who devotes special attention to anaesthetics is not thereby debarred from operating as a surgeon, and in that capacity is justified in calling in any medical man to assist him by giving an anaesthetic. The responsibility of a death under such circumstances rests with the administrator, and is decided on the lines suggested under (2).

ANSWERS.

Ignoramus.—"Alienist" is a term borrowed from the French, in which *aliéné* means a lunatic, and *s'aliéner*, to go mad (*tourner à la folie*). Several instances of the use of the word in this sense are given in Littré's great dictionary.

Hyperidrosis.

Dr. A. Howard Pirie (London) writes in reply to "Wids": I would point out that both natural and excessive perspiration is stopped by four measured doses of *x* rays, giving each time the maximum that the skin will stand. This will stop perspiration on the palms, but only modify that which occurs between the fingers, as an equal quantity of *x* rays cannot easily be applied to the skin between the fingers. I have lately treated two surgeons' hands thus, and in each case the perspiration has ceased. If "Wids" will look up the British Medical Journal for April 17th, 1909, p. 953, he will find the method described.

LETTERS, NOTES, ETC.

One Who Does Not Intend to be Victimised writes: I wish to warn your readers that a man is going about the West End saying he has been injured by falling over a loose coal-cellar plate on the pavement. He claims damages for loss of work, and surgical fees paid for treatment. I should like to know if others have had such experience. If so, measures must be promptly taken to stop this kind of thing.

A Bright Young Man.

If the proposal that a lecture on medical ethics should be given to young men at or about the time of their qualification is carried out, it would appear that it will be necessary to introduce some paragraphs warning them against misplaced zeal of relatives or friends who sometimes take very indiscreet ways of showing their admiration. A copy of a Welsh paper has been brought to our notice, in which a portrait of a young gentleman in elegant uniform appears, followed by particulars of his "exceptionally bright" medical career; but the acquaintance which the writer has with medical subjects is shown by his statement that the young gentleman in question is the only one from Wales who has won the diploma of F.R.C.S.Eng.

A Fatal Case of Gastric Haemorrhage.

M.B. writes: In reply to "F.R.C.S.Edin.'s" inquiry as to these "pathological accidents," my experience of a case may be useful. I was called to see a woman of about 28 years of age who had suddenly vomited a large quantity of blood and died immediately. An inquest, of course, followed. At the necropsy I found varicosity of all the veins on the posterior aspect of the stomach, one of which had burst, and which showed a small ragged tear. The stomach in other respects was healthy, and there was no ulceration or other discoverable disease.

Hospital Abuse.

A medical correspondent has related to us an incident which will serve to illustrate the advantages which accrue from co-operation between the hospital authorities and the general practitioners in the neighbourhood. A well-dressed man, who already owed our correspondent a long-standing account, called with his son on a Saturday evening; the boy was suffering from phimosis, requiring circumcision. The next day it was arranged that the operation should be performed on Tuesday, the father undertaking to pay a fee of 2 guineas on the Monday evening. On that evening he called, professed to be unable to raise the fee, and asked for the operation to be deferred until the Wednesday. Our correspondent then communicated with the house-surgeon of the local hospital, who informed him that the boy had been brought by his mother on the Monday, having been, as the house-surgeon understood, sent by some practitioner in the neighbourhood for circumcision. Being informed of the circumstances, the house-surgeon declined to operate, and referred the patient to our correspondent. The operation was fixed to be done on the Thursday. It seems pretty clear that there was a deliberate attempt at hospital abuse in this case.

Tinnitus Aurium.

A. D. writes: A gentleman afflicted with tinnitus aurium said to a fellow-passenger beside him in a railway carriage, "I trust, sir, the singing in my ear does not annoy you."

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Remarks
ON
THE BIONOMICS OF HELMINTHS.

A PAPER READ BEFORE THE SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

BY

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(From the Lister Institute of Preventive Medicine, London.)

My purpose in this paper is to advance some general considerations on the subject of helminth parasites. These will be derived from a study of the subject, not so much as it affects man, but in its wider relation to other vertebrates, and an attempt will be made to interpret in terms of general principles the facts which we know concerning human helminths. The treatment will be almost exclusively biological.

One of the first outstanding principles in helminthology is the fact that, with comparatively few exceptions, the definite or final host is a vertebrate. The exceptions are to be found amongst certain insects and myriapods which harbour adult nematodes, but no case is known of an invertebrate serving as the final host of a cestode or trematode. On the other hand, vertebrates and invertebrates alike may function as intermediate hosts. Generally speaking, therefore, invertebrates are parasitized only by larval stages, while vertebrates are subject to both larval and adult stages.

A second important fact is that helminth parasites can have no existence apart from their hosts, by which I mean that their life is indissolubly bound up in and dependent on the latter. It is true that they may survive the death of their host for a longer or shorter period, and may even make their exit from the dead host and be found at some distance from it, but their life is practically at an end, and they can never hope to make any prolonged existence thereafter. On this account it has been found impossible to keep adult helminths alive under artificial conditions for any length of time, although theoretically, if the exact physiological conditions of the habitat could be reproduced, it is not altogether an impossibility. Various larval stages have been reared in artificial media, but never beyond the point at which a living host was necessary for their continued development. In the case of intermediate stages the death of the host does not necessarily imply the death of the parasite, provided the former be eaten by some animal suitable as a final host. In such a case the parasite is enabled to complete its life-cycle; otherwise it must inevitably perish. The rare cases of heterogenesis are no exception to this, for even although in such cases a sexual cycle is passed through outside the host, the helminth eventually requires a host, and if that be withheld its life will be cut short.

Present knowledge seems to point to the fact that practically no species of animal can be considered immune to infection with helminths of one kind or another. The degree of susceptibility varies to a great extent in relation with the general habits, the mode of feeding, and certain imperfectly known physiological idiosyncrasies. The susceptibility to the various kinds of helminths also varies in a similar way; thus the dog is particularly prone to infection with cestodes, but rarely harbours trematodes. Certain species of helminths are capable of infecting a large number of different hosts, whereas others are confined to one particular host; for example, *Taenia solium* occurs only in man, while *Fasciola hepatica* occurs in a variety of mammals. Again, some hosts harbour numerous species of helminths, even as many as ten or a dozen different species being present at the same time, while others may harbour only one species, although that may occur with great frequency and in excessive numbers.

From a medical point of view only such helminths are of interest, as a rule, as call for medical treatment, and in consequence a somewhat inaccurate idea is apt to be engendered of the true importance of helminths in general. There is a tendency to forget that cases giving rise to symptoms form only a very small proportion of the total number actually infected. It has long been recognized that the occurrence of helminth parasites is very widespread. In 1845 Dujardin recorded that he found helminths in 53 per cent. of the 2,400 animals which he dissected, and of these, for the most part, only the alimentary canal was examined. Since that time various isolated statistics are to hand of the frequency of helminth infection amongst the different groups of animals. These are chiefly from Continental abattoirs, and are concerned with the domesticated animals. They show, however, that even in the domestic state, where a certain amount of care is exercised in the feeding arrangements, infection reaches a very high degree. At Copenhagen, for instance, Krabbe found 86 per cent. of the horses infected with *Strongylus equinus* alone, and practically 100 per cent. harboured helminths of some kind or other. He also found that 67 per cent. of dogs had intestinal parasites. This figure would undoubtedly have been much larger had the other viscera been examined in addition. Curtice, in 1887, found 87 per cent. of sheep in Colorado infected with the tapeworm, *Moniezia expansa*. Hertwig, in 1890, at the Berlin abattoir, examined 150 000 adult bovines, and met with *Fasciola hepatica* in 75 to 80 per cent. These figures form rather a disagreeable commentary on the cleanliness with which our domestic animals are housed and fed. In birds Hausmann has recorded an infection, with trematodes alone, of 30 per cent., and Wolffhügel 21 per cent. These were mostly inland birds, but in aquatic birds the percentage is much higher. On the east coast of Britain, for instance, I have found infection in over 90 per cent. In reptiles and amphibians I have no figures at hand, but here also infection is very high. Finally, in fishes I have found a constant infection of over 80 per cent. in the British fishes. In view of these figures, then, it cannot be regarded as an excessive estimate that 75 per cent. of all vertebrate animals are infected with helminth parasites of some kind or other. This may serve to indicate in a crude way the extent to which helminth parasitism enters into the economy of Nature.

Such being the case, we can hardly fail to come to the conclusion that the presence of helminth parasites in vertebrate animals must be regarded not as an abnormality, but as a normal condition, just in the same way as the presence of intestinal bacteria may be considered normal. The belief has more than once been advanced that helminths may even exercise a beneficial influence on their host. To some this idea may appear quite in discord with the medical conception of parasite as something loathsome and highly dangerous. The belief is founded on the fact that most helminths secrete a more or less irritating substance which may have the effect of stimulating digestion. There is, however, no direct evidence of this, but it is now generally agreed that the influence of helminths for the most part is, if not beneficial, at least comparatively innocuous. It is only when some vital organ is invaded, or when infection reaches an excessively high degree that harm results. In the latter case, however, it is difficult to know where to fix the limit. For instance, Dujardin quotes two cases, in one of which a black stork harboured 24 specimens of *Filaria labiata* in the lungs, 16 *Syngamus trachealis* in the trachea, more than 100 *Spiroptera alata* in the wall of the stomach, several hundred *Holostomum excavatum* and an *Echinostomum revolutum* in the small intestine, 100 *Chaunocephalus ferox* in the large intestine, and 22 *Cathaemasia hians* in the oesophagus, without showing any signs of distress. The other was a two-year-old horse, in which were found 500 *Ascaris megalocephala*, 200 *Oxyuris curvula*, 200 *Strongylus equinus*, several thousand *Strongylus tetracanthus*, 70 *Anoplocephala perfoliata*, 300 *Filaria papillosa*, and 6 *Cysticercus fistularis*. It is not at all uncommon to find several thousand parasites in one host, and one meets occasional references to the removal of a "bucketful" of tapeworms or ascarids from an animal which had previously shown no signs of inconvenience. It has been maintained by some that it is only when the general health of the host is impaired by some other cause that intestinal parasites begin to have an injurious influence. This, however, stands in need of confirmation.

If this condition of affairs, then, can exist in domesticated animals which are under constant observation, we

need not be surprised to find a similar condition amongst animals in a wild state. The rarity with which the latter appear to actually suffer from, or be incapacitated by, the inroads of helminth parasites is most striking. I cannot recall more than half a dozen instances in over a thousand birds and fishes.

In this connexion, however, three points must be borne in mind: (1) It is difficult for us to determine when an animal is suffering from illness, unless in pronounced cases; (2) the chance of such diseased animals surviving the struggle for existence and being brought to us for examination is small; (3) there is the possibility of immunity enabling the host to withstand the ill effects liable to be produced by parasites. With regard to the first point, veterinary surgeons are able to detect illness in such animals as horses and cattle with comparative readiness, and yet even they frequently report cases of extensive helminthiasis without apparent symptoms. The second point need hardly be commented upon, for it is only too well known that in Nature an animal that is seriously incapacitated very soon drops out.

The tolerance towards extensive helminth infection has more than once been ascribed to immunity, according to which antibodies are elaborated by the host to counteract the effects liable to be produced by any particular parasite. It has been found that many helminths secrete or possess within themselves a specific toxin, capable of producing ill effects under certain circumstances. The nature of these toxins, however, and the exact manner of their action, are matters on which we have as yet little definite knowledge. It is known, for instance, that *Dibothriocephalus latus* contains three different substances—namely, a haemolysin, a haemagglutinin, and a proteolytic ferment, each of which may produce evil consequences on its host, but under what circumstances exactly is still a matter of doubt. Why only certain cases suffer from the presence of this parasite is difficult to understand. That the illness is not the result of a massive infection, as in ankylostomiasis, seems abundantly proved. The anomaly has been explained on the ground that the toxins are only liberated on the death of the parasite, and that they produce their ill effects only so long as the dead parasite is retained within the host. This theory has also been advanced in the case of hepatic fascioliasis, but it lacks confirmation and does not appear to agree with other facts.

A large proportion of such pathological lesions as do occur are due to larval forms. The numerous cestode cysts of mammals, and the cestode and nematode cysts in the body cavity of fishes, may be instanced in vertebrates, while in invertebrates larval cysts of all kinds abound, frequently leading to serious lesions. Here, again, it is wonderful to what an extent helminth infection can go without causing much apparent distress to the host. Forty years ago McIntosh observed that the common green crabs (*Carcinus moenas*), at St. Andrews, were extraordinarily subject to infection with larval trematodes. He found their bodies simply riddled with the minute globular cysts which pervaded every organ and tissue, the liver, gonads, muscles and nerves being especially infected. I have recently confirmed McIntosh's observations, not only at St. Andrews, but in other parts of the country. This infection is not confined to isolated individuals, but occurs in practically all to a greater or less degree. Occasionally the infection is so enormous that nearly one-half of the crab's anatomy is replaced by trematodes. The edible crab (*Cancer pagurus*) is a victim to the same infection, but to a considerably less extent.

It seems but natural that larval forms should cause more inconvenience to their hosts, for it is to their advantage that the latter should be weakened and thus more readily fall a prey to an animal which will serve as a final host. On the other hand, the adult parasite has nothing to gain by causing the death of its host. By doing so it terminates its own existence and lessens the chance of dissemination of its offspring.

The study of tropical diseases shows us that, in an uncivilized or semicivilized state, man is much more subject to infection with helminths than under civilized conditions. The widespread prevalence of such parasites as *Ankylostoma duodenale* and *Schistosomum haematobium*, and the relatively small proportion of cases in which serious illness is the result of their presence, are indications that man, under such circumstances, approaches very closely to the condition I have described above as occurring in other animals. It is well known that individuals can get along fairly comfortably although heavily infected with helminth parasites, but it is just as well known that a certain limit is eventually reached, resulting in serious illness or death. It is obvious that parasitic infection is associated with living in a primitive state. Modern civilized cleanliness and sanitary arrangements have altered matters to a considerable extent and have rid man's body of what might be regarded as his natural heritage of parasites. At the same time, however, that they have made him less accustomed to parasitic guests, they have rendered him more intolerant of their evil influence when they do effect an entrance.

The typical life histories of helminth parasites are so familiar that I need only refer to them in brief. Nematodes, generally speaking, have by far the simplest life-history, and in many cases are almost entirely without metagenesis. The simplest cases are provided by *Oxyuris*, and many ascarids in which the ova extruded from one host are swallowed by another or the same host. In *Oxyuris* the ova immediately they appear in the faeces are in a condition to reinfect. Some ova require to remain under external conditions a longer time before they are ready to produce adults again. A step further is evidenced by those forms in which the larva is liberated from the ovum, and is only suited for reinfection after it has lived a certain period as such. *Ankylostoma duodenale* appears to be of this class, although its life-history is complicated by the fact that before it can reinfect it must assume a sort of free encapsuled state, by forming a sheath around itself. In the next type we have the embryo entering some intermediate host and becoming encysted there. This is by far the commonest life-cycle, and is found in a large number of nematodes and most cestodes and trematodes. A more complicated history is shown by some nematodes which pass through a second sexual stage outside the body. The larvae from this second stage reinfect the host. The remarkable life-histories of the filariae and *Trichinella spiralis* may be mentioned here. No part of the cycle takes place under external conditions, but the larvae pass the corresponding stage of their career in the blood. The conditions, however, are to some extent analogous, for blood is an aërobic medium, and, according to some observers, the presence of oxygen is necessary for the development of larvae. The complications which are introduced in the case of cestodes are not numerous, and usually consist of a multiplication by budding of the larva within the intermediate host. In the case of trematodes, however, much more elaborate histories may be evolved, and more than one intermediate host may enter into the cycle. There are four larval stages through which a trematode passes, namely, the miracidium, sporocyst, redia, and cercaria. The first stage is invariably spent in water. Each of the other three, however, may be passed through in a different host. The miracidium may enter one host and give rise to the sporocyst. The latter, by a process of internal budding, produces rediae, which may be set free and enter a second host. In this it again, by a process of budding, gives rise to cercariae, which may in their turn be set free and infect a third host, which is eventually eaten by the final host. All kinds of modification, however, may enter. Thus the sporocyst may take time by the forelock, and produce cercariae instead of rediae, and this happens fairly frequently. Again, it may take a step in the other direction, and produce a second brood of sporocysts, and the rediae also may reproduce rediae instead of cercariae. Occasionally, instead of wandering from one host to another, it passes the whole three stages in one host, or two in one host and one in another. Sometimes the process is very much reduced, the sporocyst producing cercariae, which never make their escape until they find themselves in the alimentary canal of their final host. There may be cases in which intermediate hosts are entirely absent, the miracidium simply effecting an entrance into its final host and becoming adult there. This seems to be the case with *Schistosomum*, in which, hitherto, efforts to discover an intermediate host have been unavailing. The intermediate hosts of nematodes, when present, are usually fishes or insects, occasionally crustaceans; cestodes seem to like

worms and molluscs as well as fishes, while trematodes show a great preference for molluscs.

The life-histories of most human helminths have been worked out to a more or less satisfactory extent. Owing, however, to the difficulty of discovering intermediate hosts, several remain doubtful. In the case of domesticated animals a considerable amount of work has also been done, with successful results. With regard to the rest of the animal world our knowledge is very meagre. A large number of adult helminths are known, with no corresponding larval stages, and vice versa. This to some extent is the result of imperfect description. A further difficulty is that of distinguishing larval forms from one another, possessing as they do so few specific features. For the most part, all that can be done in elucidating life-histories is to compare descriptions of adult forms with those of larvae and hypothecate their connexion if other conditions point to its being a natural or likely one. Feeding experiments are exceedingly difficult to carry out in the case of birds and fishes.

The paths of infection are two, the mouth and the skin, and of these the former is by far the commoner. Depending on the life-history of the parasite, introduction by the mouth may take place in water, in food, on dirty fingers, and rarely, if ever, by the air. Introduction through the skin is effected either by the active efforts of the larvae when the hands or feet are exposed in water or damp places, or through the agency of biting insects.

It is practically an undisputed fact that no helminth parasite is capable of multiplying sexually within the body of its host. It is an essential condition that the ova or larvae should pass out of the body of the host before they can proceed to grow again. This is generally considered to be due to the fact that the larvae require aërobic conditions for their development. This may well be the case, but the simplest explanation is found in the well-known developmental doctrine that "ontogeny is an abbreviated recapitulation of phylogeny," or, in other words, that the life-history and development of an individual tends to be a more or less perfect summary of its ancestral history.

The introduction of intermediate hosts is a difficulty for which various explanations might be advanced. It is generally agreed that trematodes and cestodes are derived from the Turbellaria, or rather that they have a common ancestry (although Ssinitzin has recently advanced the somewhat extraordinary opinion that the digenetic trematodes have an ancestry in common with the lower crustacea); in the same way the parasitic nematodes are derived from the free-living nematodes. Many of the Turbellaria and free-living nematodes show a tendency towards parasitism, and in fact a large number of the latter are parasitic in the larval stage. It may be considered that prior to the advent of the vertebrates many of the helminths had already become parasitic in invertebrates. With the advance in the evolution of the vertebrates the invertebrates naturally became their chief source of food supply, and it would frequently happen that an invertebrate harbouring a helminth would be ingested by a vertebrate. By some means, which it would be vain to attempt to explain, except possibly by mutation, the helminth became adapted for living in the intestine of the vertebrate. Here it would produce young, which, however, not being trained to parasitism, would find their way back to external media. Growing older, the tendency towards parasitism would again become strong, and they would seek a convenient invertebrate. Thereupon the cycle would be repeated, and we may suppose that the tendency to become adult in invertebrates gradually disappeared, until the present state of affairs was reached, in which the helminth proceeds only a certain distance towards maturity in the invertebrate. Semi-parasitic nematodes, such as *Gordius* and *Mermis*, show that a somewhat reverse process may have taken place in so far as it was the young of these species which took shelter in invertebrates, and getting older and more able to look after themselves, they returned to a free life. We may suppose that some of these protected larvae when swallowed with their host by a vertebrate found conditions very much to their liking, and became sexually mature in the new environment. Such problems as these, however, are purely speculative.

In introducing the subject of the specificity of helminths with regard both to host and habitat, I wish it to be distinctly understood that it is not my intention to dogmatize on the matter; I intend simply to lay before you the general principles which to me seem to regulate the distribution of helminths in their various hosts and habitats. It would be vain to endeavour to formulate hard and fast laws, admitting of no exceptions, for such laws are entirely unknown in Nature. It must be remembered that Nature is in a state of continued flux, and that the phenomena to be observed at any particular instant comprise two components: on the one hand, those which are in a state of relative stability or equilibrium for the time being, and on the other those which are in a state of progression or retrogression. It must also be remembered that evolution has not advanced at the same rate in every direction; along some lines it has apparently remained stationary for very lengthy periods. Thus the present biological picture presents organisms on which evolution has acted to a very high degree, and at the same time others, almost archetypic, in which the process has been arrested for many ages. Helminths are in no way exempt from the same conditions, and this must be borne in mind in dealing with the matter in hand.

The idea of specificity is no new one. Even in the beginning of last century we find that helminthologists attached a certain weight to it. This is most evident in the case of Dujardin, who treated helminthology more from its bionomic than from its systematic aspect. Later, however, the principle was hardly tenable, for species, apparently similar, were found in all manner of different hosts and habitats. Such species, however, were only superficially similar, and the inability to distinguish them was due entirely to the failure of methods of differentiation. In certain instances there has been a tendency to carry the principle of specificity to an extreme degree, each parasite being regarded as specific for a particular host. This view is quite as unjustifiable as the complete denial of any specificity. My intention here is to show that the degree of specificity is an intermediate one, that no hard and fast rule underlies it, and that it shows the same amount of variation, with the same anomalies and exceptions, as is to be met with in other biological phenomena. It will be shown that the specificity is not so much between one species and another—although that occurs frequently—as between one genus and another, or between two subfamilies or two families. Further, the hosts of these species and groups may be isolated species of vertebrates, or genera or groups.

It will be necessary first of all to refer briefly to the classification of the helminths. As in many other branches of biology the taxonomy is in a rather incomplete state. It is only within the last dozen years that anything approaching a natural classification has been attained. The reason for the slow advance is not far to seek. Throughout the animal kingdom the systematic differentiation of one species from another is based to a large extent upon the study of external characters, such as the number, arrangement and shape of appendages, and this is found to be quite a satisfactory working method in the majority of cases. With the helminths, however, it proved miserably inadequate, nor is that surprising when one considers the structure of a tapeworm or distome. The external features are few and capable of little permutation. The dimensions, shape and colour of the body, the situation and relative sizes of the suckers, the presence of spines, papillae, or other simple appendages, and the position of the genital aperture sum up all there is to work upon. The absolute insufficiency of these means of diagnosis is apparent when we find that until comparatively recently a large majority of all tapeworms were included in the genus *Taenia*, and the greater half of trematodes in the genus *Distomum*. As a result, twenty years ago the genus *Taenia* comprised nearly 500 species, and the genus *Distomum* well on to 1,000, probably two of the largest genera that have ever existed in zoological nomenclature. The descriptions of older writers are in many cases practically useless, as they could apply equally well to half a dozen different species. Attempts were repeatedly made to deal with these cumbrous groups, but as they were all based on external features they were, almost without exception, unsuccessful. It was not until a study of internal structures disclosed their wonderful variety that systematic and natural classifi-

cation became possible, and we owe the material advances that have since been made, in a large measure to Professor Looss, of Cairo. The method has led to the differentiation of innumerable allied species, and it would be no exaggeration to say that the number of known species of helminths has been doubled within the last ten years. The erstwhile genera *Taenia* and *Distomum* have been subdivided again and again until they have come to represent taxonomic units of higher rank even than families. These innovations have not materially affected the broad lines of classification, although they have influenced their relative value. The point which I wish to emphasize, however, is that in place of the former apparently homogeneous genera *Taenia* and *Distomum*, we have now a number of distinct groups each with its respective characteristics, but all more or less intimately and naturally related. It is with these groups and these subdivisions that I shall deal, for the taenias and the distomes, together with the nematodes form by far the largest proportion of helminths. It will be impossible in the time at my disposal to deal with each of these three classes, so that I shall content myself for the most part with the treatment of the distomes. The remarkable diversity of their structure and habitat, moreover, makes them most suitable for illustration of the principle I wish to lay before you.

From the point of view of habitat the alimentary canal cannot be regarded as one homogeneous whole, for apart from the mouth, oesophagus and stomach, each of which presents distinct conditions, the intestine shows at least four separate habitats corresponding to the anatomical and physiological divisions. It is well known that *Ankylostoma duodenale* occurs almost invariably in the jejunum, *Ascaris lumbricoides* in the ileum, *Trichuris trichiurus* in the caecum and *Oxyuris vermicularis* in the colon and rectum. These are four distinct types of nematodes, and it might reasonably be imagined that we had here a high degree of specialization in an extremely highly organized host. That, of course, is true, but the principle is the same throughout. In birds, for instance, it is not uncommon to find four different species of distomes in the intestine at one time, each maintaining a distinct and circumscribed area. In fishes the same holds good. Cases, however, not uncommonly do occur where there is a certain amount of intermingling of different species, but these are usually closely related species.

Practically every organ and tissue in the body may be the habitat of helminths, but, excluding larval forms, we find the most frequent habitats are the alimentary canal, the liver and gall bladder, the respiratory passages and lungs, or gills in the case of fishes, the urinary system, the vascular system, and the subcutaneous tissue. In the case of birds the eyes and the bursa Fabricii, an appendix of the cloaca, are not uncommon seats of infection; the swim bladder is an additional seat in the case of fishes. Generally speaking, then, the only organs that escape are the brain, the muscles, and the genital system. The brain and muscles are obviously not suitable for the life of adult helminths, but it is curious that the genital passages should escape in the way they seem to do. A few cases are on record of adult helminths being found in the reproductive organs, but they were almost invariably errant forms that had strayed from the intestine. *Oxyuris vermicularis* has even been found in the pouch of Douglas, having wandered there presumably via the uterus and Fallopian tubes. An interesting occurrence, of which several records exist, is the inclusion of a trematode, *Prosthogonimus pellucidus* (V. Linstow) within the white of a hen's egg. The explanation is simple. The species lives in the bursa Fabricii, and occasionally wanders into the rectum and uterus. In the latter it becomes entangled in the albumen before the shell has been formed.

Each habitat is suitable for one or more species of helminth, and it may be taken as a general rule, which, however, must not be applied with too unrelaxing strictness, that nearly-related species tend to inhabit the same situations in their various hosts. Thus, in mammals the *Fasciolidae*, of which *Fasciola hepatica* is the type, all inhabit the liver and gall bladder, although the genus *Fasciolopsis* is an exception. *Fasciolopsis*, however, appears to live high up in the intestine in close proximity to the bile duct, and may be regarded as a transition stage between an intestinal and a hepatic parasite. *Fascioletta* may come in the same category. The liver-frequenting habit of the *Fasciolidae* is found not only in terrestrial mammals but in marine mammals as well, for in the porpoise we find the *Brachycladiinae*, a subfamily of the *Fasciolidae*, infesting the liver and causing liver-rot, exactly similar to that in sheep. We find representatives of the same subfamily, namely, *Lecithodesmus goliath* (V. Ben), and *Orthosplanchnus arcticus* Odhner, and *O. fraterculus* Odhner in whales and seals. Another group of mammalian hepatic distomes is the *Opisthorcinae*. This is a subfamily nearly related to, but not included under, the *Fasciolidae*. In man we are familiar with *Opisthorcis noverca* Braun, *O. felineus* (Rivolta), *Clonorchis sinensis* (Cobbold), and *C. endemicus* Looss. *O. felineus* occurs in several other carnivorous mammals; *O. tenuicollis* (Rud), a very closely related species in the seals, and *O. lancea* (Dies.) in the dolphin. Some species of *Opisthorcis* are found in the liver of birds, as, for instance, *O. longissimus* (V. Linst.) in *Ardea stellaris*, *O. simulans* Looss, and *O. geminus* Looss, in several birds. A closely allied genus, *Metorchis*, includes two liver parasites of the cat, *M. albidus* (Brn.), and *M. truncatus* (Rud). These also occur in the grey seal (*Halichoerus grypus*). Here again some representatives of this genus are found in the liver of birds, for example, *M crassiusculus* (Rud) in the buzzard, (*Buteo buteo*), and *M. xanthosomus* (Crepl) in the lesser grebe (*Podiceps minor*). A distantly related subfamily, the *Telorchiinae*, occurs in the liver, or in one case the duodenum of reptiles. The third great class of liver flukes, properly so called, is the subfamily *Dicrocoeliinae*, but this is almost exclusively a class of bird-trematodes. The only mamalian representative is *Dicrocoelium dendriticum* (Rud) (=*D. lanceatum* St. and H.), but this species is quite as widespread as *Fasciola hepatica*. Numerous species of this and the two allied genera *Lyperosomum* and *Athesmia* occur in the liver and gall-bladder of birds. Amphibia are practically free from liver helminths. Fish also rarely harbour adult parasites in the liver or gall-bladder. Amongst the few cases may be mentioned *Fellodistomum fellis* (Olsson), and *F. agnotum* Nicoll in the cat-fish (*Anarrhichas lupus*), and *Anisocoelium capitellatum* (Rud), in *Uranoscopus scaber*, but these forms are very different from any of the mammalian liver flukes. In the *Fellodistominae* we have another example of two genera, one of which, *Leioderma*, lives in the intestine close to the opening of the bile duct, and the other is a purely gall-bladder parasite.

Owing to the enormous number of exclusively intestinal helminths it will be impossible to refer even briefly to them in this connexion, so that I shall pass on to the other parts of the alimentary canal. Distomes rarely inhabit the stomach or oesophagus in mammals or birds, but in fishes there is a large family, the *Hemiuridae*, the members of which live almost exclusively in the stomach. Again in birds the genus *Clinostomum* contains a large number of species, all of which live in the oral cavity; the several species of the genus *Halipegus* exclusively in the mouth of frogs. The cloaca, too, in birds with its appendix the bursa Fabricii, harbours numerous distomes, which fall into two or three more or less well-defined groups. In the lungs we find another favourite seat of trematodes. In man there is the common *Paragonimus westermanni* (Kerbert), which shows several features of resemblance to *Fasciola hepatica*. It also occurs in several carnivores. In addition there is *Paragonimus rudis* (Dies.) from the otter (*Lutra brasiliensis*) and *Paragonimus compactus* (Cobbold) from the mongoose (*Mungos fasciatus*). No distomes have ever been described from the lungs of birds, although a few have occasionally been met with in the trachea. Lung parasites of any kind, in fact, are very uncommon in birds, but I cannot venture to offer any explanation of this rather curious circumstance. In amphibia, on the other hand, the lungs are a favourite seat for parasites of all kinds, and we find here a special subfamily, the *Haplometrinae* Pratt, the chief genus of which is *Pneumonoeces* Looss. The members of this group are found only in the lungs of amphibia and a few reptiles (genus *Macrodera*). In fishes we have an entirely different state of affairs. External gills take the place of internal lungs, and here we find a distinct class of trematodes, which are radically

different from the distomes both in structure and in development. Their life-history is direct, with no intermediate host. They belong to the order *Monogenea*, and are generally referred to as Ectotrematodes. There are numerous genera and species, with much diversity of structure, but as they do not concern us here we shall not discuss them further.

The next viscus we may consider is the bladder and urinary organs. Here, again, we find distinct groups, constantly inhabiting this system and no other. Urinary parasites are comparatively infrequent in mammals and birds, the only common ones being the nematodes, *Eustrongylus gigas* and various species of *Trichosoma*. In reptiles, amphibians and fishes, however, we have a large homogeneous family of trematodes, the *Gorgoderidae*, which includes the genera *Phyllodistomum* from fishes, *Gorgodera* and *Gorgoderina* from amphibians, and *Plesiochorus* from reptiles. The last illustration which I shall take in this connexion is the case of the vascular system. Here we have the well-known *Schistosomum haematobium* and *S. japonicum*. These do not belong to the class *Fasciolidae*, but represent a small separate class, the *Schistosomidae*. A species, the same as or closely resembling *Schistosomum haematobium*, occurs in some of the primates. Other two species, *S. crassum* and *S. indicum*, are found in the ox and sheep. The most closely allied genus is *Bilharziella*, which comprises several species parasitic in birds; and a third recently described genus, *Gigantobilharzia*, is also found in birds. These are all the blood trematodes so far as known.

From a consideration of the foregoing, the general application of the principle of specificity of habitat can hardly fail to be clear, and, to my mind, there could be no better demonstration of the validity and correctness of Looss's system of classification. It is an axiomatic biological principle that related species and genera have common habits. Thus, all the carnivores are flesh-eating, wild, fierce animals, lithe of body and swift of foot, and, generally speaking, have habits very much in common. Subdividing them further into *Felidae*, *Canidae*, and *Ursidae*, we find constant differences in habit between the groups, which correspond to their morphological differences. The illustration of this correlation between habit and structure could be carried to the various genera. It is thus not surprising that the same has been found to hold good among the helminths. Moreover, we have several interesting examples of the phylogenetic transmission of acquired habits. Thus, amongst the *Fasciolidae*, the *Brachycladiinae* may be presumed to have begun to diverge from the parent fasciolid stock at the time when the cetacea first took to an aquatic life, but the hepatic habit remained impressed upon them, so that they continued to be liver parasites.

Turning for a short time to what is, in a sense, the converse of the foregoing, but at the same time an amplification of it: it has been shown that there is a specificity of organic habitat, it will now be shown that there is a specificity of host, always allowing for a certain number of exceptions, as in the first case. This principle is well known to those who have had to work experimentally with helminths. The most familiar case is that of *Ankylostoma duodenale*, which several workers have repeatedly endeavoured to introduce into animals other than man, but with very rare success. Dogs have occasionally been infected, but it has been found impossible to do the same with rabbits, guinea-pigs, etc. Again, it is impossible to infect the dog with *Taenia solium*. These, however, are but instances of a very general rule, of which I shall proceed to give a few more comprehensive examples. Of the true liver flukes, the *Fasciolidae* are strictly confined to mammals, the *Opisthorciinae* are found equally in mammals and birds, the *Dicrocoeliinae*, with one exception, exclusively in birds, and the *Telorchiinae* entirely in reptiles. No representatives of these are found in any of the lower vertebrates. Subdividing the *Fasciolidae*, the *Fasciolinae* are, with a few doubtful exceptions, restricted to the primates, ruminants, and, possibly, marsupials; and the *Brachycladiinae* to the cetacea and pinnipedes. With the *Fasciolinae* it is impossible to reduce the specificity to greater detail; but in the *Brachycladiinae* we have the genus *Brachycladium* confined to the cetacea, *Lecithodesmus* to the whales, and *Orthosplanchnus* to the seals.

The Cyclophyllid or Taenioid cestodes form another group, which is confined, with only three exceptions, to the mammals and birds. In this group sixty-five genera have already been distinguished. One of these is amphibian, another reptilian, and a third has mammalian and reptilian representatives. Of the other sixty-two, forty-two are exclusively confined to birds, and eight to mammals, while twelve are common to both. There is thus evidently a preponderating partiality towards birds.

There are nine families, of which three are exclusively avian. The three largest families are the *Anoplocephalidae*, the *Davaineidae*, and the *Hymenolepididae*. The first is typically mammalian, the other two typically avian. The *Anoplocephalidae* contain six of the eight exclusive mammalian genera. The four other genera contain a few avian forms. In the *Davaineidae* only one (*Davainea*) of the six genera contains mammalian forms, and these are isolated cases. In the *Hymenolepididae* twenty-three genera are exclusively avian, two mammalian, and five contain representatives of both, but, except for *Hymenolepis*, the mammalian forms are few. This differential process could be carried to the individual species, but it will be hardly necessary to enter into such detail. It will be sufficiently clear, from the facts I have already put forward, that a remarkable degree of specificity does exist, but that there are certain meeting-places where the various genera and species become less specific. This is particularly evident in the case of large and flourishing genera, such as *Hymenolepis*, which, as a type, has apparently become adapted—partly by the nature of its life-history, partly by its own physiological requirements—to varying conditions in a large number of different hosts. As a genus, however, it is not very homogeneous, in spite of the remarkable uniformity of its fundamental structure.

A knowledge of the general facts of helminthology is essential to the study of the particular forms which parasitize man, just as much as a general knowledge of protozoology is essential to the study of malaria and allied diseases. It is evident that the occurrence of helminth parasites in man is only an instance of a general phenomenon in nature. We have seen that no animal is exempt from the attacks of helminths of some description or other, and that the less civilized races of mankind are practically in the same condition. We in this country owe our comparative freedom from helminths to the amenities of civilization, but when these fail this exemption disappears. From the point of view of helminthology, then, civilization may be regarded as consisting of three factors—namely, the cooking of food, the wearing of clothes, and the application of sanitation and personal cleanliness. These are the three chief means of defence against helminths. We saw that food was the essential factor in the transmission of parasites in the vast majority of cases. Infection with trematodes and cestodes (which are heteroxenous) can be acquired only in this way, with the doubtful exception of schistosomiasis. This, however, applies only to a limited extent in the case of nematodes (which are monoxenous). The most effectual remedies against the inroad of platyhelminths are proper cooking of food and filtration of drinking water. All parasites are killed by exposure to a temperature of 100° C. (or even less), but it is of importance that the whole of the food be raised to this temperature, not merely the exterior. Most natural waters contain minute crustaceans and other animals, which frequently harbour helminth larvae. Careful filtering, however, entirely removes those. The wearing of clothes is not of the same far-reaching importance, but it appears to be essential in the case of *Ankylostoma*, *Filaria*, and *Schistosomum*. Sanitation and cleanliness are of little less importance than the proper cooking of food. They are specially important from an epidemiological point of view. The only means of dealing with an epidemic consists in the immediate destruction or disposal of the faeces from the infected cases, and in scrupulous personal cleanliness amongst those exposed to infection. Were these measures strictly carried out, there would be no such outbreaks of ankylostomiasis as have been notorious in Europe of recent years. It is this third factor which is most largely concerned in the

spread of nematodes. There remains a fourth factor, which is not so directly connected with, or dependent on, civilization, namely, the transmission of helminths through the active agency of insects. The outstanding instance, of course, is filariasis. This is independent of food, sanitation, and clothing—unless, indeed, the whole body, including the face, could be covered. Even here, however, a means has been found to limit the occurrence of the disease—namely, by filling up the swamps and marshes, and thus destroying the breeding grounds of the mosquito. This measure might well enough be included under sanitation. These, then, are the main prophylactic and preventive measures, and, could they be efficiently carried out in all cases, man would cease to be afflicted with helminth parasites. This, certainly, is a counsel of perfection, and it seems vain to hope for its ultimate attainment in tropical countries. So long, however, as it fails of complete realization, just as long will there be helminthiasis in these regions. Medicinal remedies in places where helminthiasis is endemic are of merely transient utility. They only touch the outcrop in various isolated individuals, all the while the root of the evil remains untouched. Here, assuredly, one effort directed towards prophylaxis is worth a hundred towards cure.

ON RECURRENT MOTOR PARALYSIS IN MIGRAINE.

WITH REPORT OF A FAMILY IN WHICH RECURRENT HEMIPLEGIA ACCOMPANIED THE ATTACKS.

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Recurrent paralyses in some of their varieties have recently attracted considerable attention.[1] In migraine an opportunity for observing such paralysis is very rare, for it is a commonplace that the symptoms in the great majority of attacks of migraine are exclusively on the sensory side. In what follows I propose to give an account of a family in which hemiplegia, with, as a rule, loss of speech, was a constant feature of attacks of migraine, and to such a degree as to be almost unique, so far as I can ascertain; and also to deal with the forms of motor paralysis which occasionally occur in this disorder.

The restriction of the attack to purely sensory phenomena is one of the most interesting features of migraine, and at the same time one of the most puzzling. In an affection like migraine, of which the exact cause is unknown, and in which there are no recognizable pathological changes, the diagnosis rests upon the symptoms and their grouping. As a rule, the peculiarity of the symptoms and the regularity of their order of occurrence make the affection as definite as any symptom-group in medicine. But in diseases where the diagnosis depends upon the symptoms it is essential that these should conform to the accepted type. This is especially the case when phenomena are present over and above those recognized as proper to the attack. In some cases of migraine which lie on the borderland between it and other neuroses the distinction is by no means easy, and sometimes must be left in doubt. Especially may such difficulty arise in deciding between a diagnosis of epilepsy and migraine.

In the family history given below the strongly hereditary character of migraine is well marked, and also the tendency to direct transmission of the disease. The characters of the attacks which mark them as belonging to migraine will, however, be better considered when the cases have been described.

Attacks of migraine may be associated with motor paralysis in several ways, excluding those cases in which it occurs in accidental association with independent organic brain disease, such as tumour, or in which it is doubtful whether atypical migraine does not belong to another affection such as epilepsy.

1. *Migraine Secondary to Structural Lesions.*

Attacks of migraine may be a symptom of onset in hemiplegia due to a vascular lesion or to an intracranial tumour. This group I do not propose to consider. In connexion with the production of an attack of migraine by occlusion of an artery it may be recalled that Leonard Hill[2] produced an attack in himself by digital compression of one carotid artery.

2. *Long Standing Migraine Complicated by Paralysis.*

Cases in which migraine of long standing has issued in permanent paralysis, generally due to a vascular lesion. In some of these one of the phenomena of the aura of the attack, such as aphasia or hemiopia, has become permanent, but in others the permanent disability in no way corresponds to the aura. Instances of this kind are fairly numerous.

In a case reported by Oppenheim,[3] in a patient who suffered from old-standing migraine, there occurred in the course of an attack stupor with persistent aphasia and right hemiplegia, found to be due to thrombosis of the internal carotid at the origin of the Sylvian artery.

In Infeld's[4] case, a woman aged 27, who suffered from hereditary migraine, in one attack felt something give way in her head, and fell but did not lose consciousness. There resulted right hemiplegia, with hemianaesthesia and blindness of the right eye. One month later there remained weakness and spasticity, with post-hemiplegic disorder of movement and slight paraesthesia.

J. J. Thomas[5] gives two cases, in one of which an attack like migraine was followed by left hemiparesis, hemianaesthesia, and hemiopia; in the other, a woman aged 27, subject to migraine, left hemiparesis, hemiparaesthesia, and hemiopia resulted. In both cases hemiopia was permanent; the other symptoms cleared up. He gives another case of migraine in which permanent hemiopia resulted.

Indeed, hemiopia as a permanent result of migraine seems to be more common than paralysis, although both are fortunately rare. Often in these cases the hemiopia forms a very marked feature of the aura preceding the attack,[6] but this, as stated above, is by no means invariable. In one case under my care a woman, aged 35, had suffered for seventeen years with attacks of migraine preceded by right hemiopia. One morning she woke up with dimness of vision for objects to the right, and this in the course of a week developed into right hemiopia, which remained permanent. The optic disc looked pale, but was otherwise normal. Her vessels were healthy.

With regard to such cases as the above, those who believe that attacks of migraine are due to vasomotor spasm of cerebral vessels have raised the point whether constantly repeated spasm of an artery may not in time lead to disease of its walls, and hence to rupture or thrombosis. It is difficult to speak with certainty on this point, but the great infrequency of permanent paralysis in a disease so common as migraine, the fact (at any rate, in my experience) that sufferers from migraine do not suffer in greater proportion from atheroma or arterio-sclerosis than other persons not so affected, and the fact also that such paralysis when it occurs often affects persons under 40—the age of the patients mentioned above is noteworthy—are all against this view. There must, in addition to migraine, be some other factor at work. Further, as Spitzer[7] points out, if repeated vasomotor spasm led finally to thrombosis it would be expected that the finest arterial twigs would be affected, whereas in some of the recorded cases large vessels must have been involved. Exception to this last statement should be made for a few cases in which there was good evidence of thrombosis of the central artery of the retina.

J. J. Thomas[8] states the case very fairly by concluding that migraine may occasionally result in permanent paralysis, aphasia, or hemiopia, and that in most instances this is due to an attack favouring a vascular lesion in persons who already have disease of the vessels, but that in others the lesion may occur in young persons whose blood vessels are in all probability in a normal condition; and that although great caution is necessary, before ascribing such paralyses to migraine, to exclude coincident and independent disease—for example, of the vessels—yet a few cases remain which justify the statements made by Charcot and others that the normally transient hemiopia or aphasia may become permanent.

3. *Migraine Attended by Temporary Paresis.*

Cases in which paresis or even paralysis, temporary and recurrent, is one of the regular phenomena of the attack. In the ordinary way this consists of slight motor weak-

ness in the limbs, generally the arm, accompanying or following the sensory disturbance—for example, pins and needles, etc.—of transient duration, from a few minutes to half an hour, not of common occurrence, and, as a rule, only present in severe attacks. For instance, a patient of mine, who suffered from severe migraine, described a pricking sensation in the right arm, which then went numb, and she could not feel if touched upon it. With the numbness there came loss of power; she could "move it but not use it." The same feelings spread to the leg, so that "she could not walk" for a few minutes. The symptoms passed off in the same order, and were most severe in the arm. According to her statement the sense of position of the limbs was retained. In Dr. Liveing's classical work on migraine, p. 14, a good case of this kind is given. His general conclusion is that "in some few cases loss of sensibility is accompanied by a certain loss of motor power in some parts—in fact, a transient hemiplegia" (p. 87). He quotes some other cases where the temporary paralysis was marked; one of those from Dr. C. H. Parry of Bath is a good example, but in some of the others the diagnosis seems to be doubtful; one of them, for instance, was a case of Adams-Stokes disease.

Spitzer[9] refers to the occurrence, as an unusual feature of migraine, of transitory paresis, of monoplegia or hemiplegia, but gives references chiefly to "ophthalmic migraine." Féré describes a case in which paralysis and loss of sensation came on with attacks of migraine shortly after the onset of the attack. The paralysis lasted for one to one and a half hours and disappeared with the scotoma. Cases of transitory aphasia are not so uncommon as part of the attack; in most of the cases the speech affection is stated to be sensory aphasia, but in some it is due to defective articulation, the patients are not able to "form their words," whilst full comprehension is retained. Otherwise, I have not been able to find in the literature of recent years any cases of transient hemiplegia occurring during attacks of migraine and complete for the time they last, which are quite free from objection as not being possibly due to other morbid conditions, for example, a previous attack of syphilis, present at the same time.

A remarkable case is reported by Professor Osler, in which attacks of recurrent hemiplegia, migraine, and angio-neurotic oedema were associated in the same patient, though not at the same time. I quote from the account given by Dr. A. E. Russell.[10]

"The patient, a medical man, aged 29, at the age of 12 years had an attack of right hemiplegia with aphasia which lasted seven or ten days. Within the year he had five or six further attacks of hemiplegia, each successive one less severe and not accompanied by aphasia, and from that date was subject to occasional attacks of numb, tingling sensation in the side. From the age of 26 he became subject to severe attacks of migraine. At 28 he had a sudden attack of pain and swelling in the feet, and at the same time began to suffer from soreness at the ends of the fingers. He had frequent attacks of angio-neurotic oedema of the upper lip and outbreaks of urticaria associated with severe darting pains in the legs. He had one attack of abdominal colic with pain in the calves of his legs, and an outbreak of purpura and urticaria; later, he suffered from haematuria and albuminuria. Professor Osler considered that the recurring attacks of hemiplegia were probably associated with changes in the brain of essentially the same nature as those which subsequently occurred in the lip and skin—in other words, that an angio-neurotic oedema occurred in the brain substance."

History of a Family in which Migraine was Attended by Recurrent Hemiplegia.

I will now give the history of the family which has recently come under my observation. They belong to the working class, and, as is well known, people of this status often lose sight of their relations, and are unable to give accurate details of their condition. The three members of the family from whom I obtained the information were above the average in intelligence, and clear in their statements. Evidence as to four generations was available. The great grandparents (H) were said to be free from the affection, and had a very large family (the exact number was not ascertained), of whom four certainly—one son and three daughters, and possibly another son—were affected. Two of the daughters were unmarried, the third married a man not liable to migraine and had a daughter, who had at least one attack of migraine with paralysis.

CASE I.

The son, H_2, suffered from attacks of headache with transien paralysis all his life; the paralysis involved one side only, and there was marked affection of vision. His last attack occurred about the age of 54; he was taken in a tram-car with loss of power in the right arm and leg and great impairment of vision followed soon by intense headache. He had to be carried home from the car, as he could not walk without support. Pleurisy or pneumonia followed shortly after this attack, of which he died three weeks later.

The history of the affection of vision, hemiplegia, and headache which occurred in the tram car in this order was very definite, and the other attacks from which he had previously suffered were stated to be similar, and equally severe as regards the loss of power.

This man had a son, H_3, a daughter (M), both affected, two other sons unaffected, and another daughter who at the age of 5 years had whooping-cough. After a violent paroxysm of cough she had right hemiplegia, which lasted three weeks, and then cleared up, together with loss of speech, from which she took a long time to recover.

CASE II.

H_3, examined, but not seen in an attack. A small, pale man, a porter, aged about 47; no evidence of organic disease. Has suffered from attacks of hemiplegia with migraine since the age of 28. For years they came on about every two to three months, but of late years have been much less frequent, and he has had freedom from them for as much as two years. If at any time he was run down in health the attacks came much more frequently. Order of phenomena in the attack: (1) Dimness of vision in both eyes, no scintillating scotoma; (2) sometimes simultaneously with this a feeling of numbness or tickling, starting in toes or feet, and spreading upwards; (3) loss of speech, consciousness being unaffected, "he can understand what is said to him, but cannot reply"; (4) hemiplegia, in which there is absolute loss of power on one side, and he cannot stand, together with slight loss of sensation on the affected side; (5) nausea, occasionally vomiting. The loss of power, of speech, and the nausea last for about an hour, and as they pass away, (6) intense and incapacitating headache comes on and lasts for one to two days. Although the hemiplegia is of short duration, he is generally laid up for two days by the attack, and often does not feel quite well for a week. The hemiplegia is nearly always right-sided; both sides of the body are never affected in the same attack; loss of speech accompanies the hemiplegia, whether the latter is on the right or left side.

This man married a healthy wife; of the four children, aged 17, 14, 12, and 9 years, two are affected.

CASE III.

H_4, daughter of above, aged 14. This patient looks healthy, and presents no signs of organic disease. The attacks began at the age of 7, and recurred every two or three months, but have ceased for the past year. They consist of (1) dimness of sight, (2) loss of speech, (3) right hemiplegia, (4) intense headache with vomiting, followed by (5) drowsiness. She may sleep or lie in a drowsy condition for two or three days after an attack. The hemiplegia is always right-sided; loss of consciousness or muscular twitchings have never occurred. The hemiplegia sometimes comes on with extraordinary suddenness, so that she has been taken with an attack when standing, and has suddenly fallen from giving way of the leg. In this case the hemiplegia lasts for a few hours, or even a day.

CASE IV.

H_5, a boy, aged 9. An intelligent child, but has always been delicate, and goes to invalid school. As a small child he suffered from severe rickets, and in consequence had difficulty in walking until the age of 7 years. He then had an operation for straightening his legs, and after that was able to walk and improved in health. He has been well lately, and on examination, except for some anaemia and traces of rickets, there was no evidence of disease. He has had two attacks in which there was a greater extent of paralysis than in any of the other patients.

On October 25th, 1909, he was taken for a midday drive in the carriage belonging to the invalid school which he attended, and the lady in charge thought that he looked ill. The child then said to her: "Miss R——, it is getting dark. I can't see you." Shortly afterwards she lifted him out of the carriage, and found that he could not stand, and had lost the use of his right leg, loss of power in the right arm quickly followed, together with loss of speech; he seemed to know what was said to him, but could not answer; the face was not affected. Twenty minutes later he lost power in his left leg, and then in his left arm, so that he was helpless and paralysed all over; moreover, he could not hold his head up; if lifted, it dropped again to one side. This attack lasted about two hours, and the paralysis began to improve towards the end of this time; he complained of headache in the frontal and occipital regions, asked to go to bed, and vomited two or three times. There were no muscular twitchings or convulsions. The paralysis passed off in the order of onset. The attack left him weak for three or four days, especially in the right arm and leg, and then he recovered completely.

On November 26th he had a second attack, without assignable cause, whilst at school. It began at noon with loss of sight, followed by loss of power, first on the right, and then on the left side, as in the first attack. Speech was also lost, but he was quite sensible. When brought home at 4.30 p.m. he had

recovered speech, but was quite helpless, the loss of power affecting both sides of the body. He complained of very severe headache, and vomited all the day. Recovery took place in about the same time.

He was admitted into the Bristol General Hospital and remained there for nine weeks. During this time he had no attack. Beyond some anaemia, which improved under treatment, he appeared healthy, active, and intelligent for his age. At Christmas time he was purposely allowed to eat indigestible and rich foods, and as he had a large appetite he took full advantage of this, but no attack resulted.

After being for a week on a diet of bread 6½ to 7 oz., butter ½ oz., meat 3 oz., 1 egg, potatoes 2 oz., rice pudding 3 oz., milk 16 oz., with one orange or apple, the analysis of the urine made by Dr. Emrys-Roberts was as follows:

Quantity in twenty-four hours, 515 c cm. Specific gravity 1020, acid, no albumen, no sugar, no deposit. Urea, 2.5 per cent. Uric acid (Hopkin's method, 0.3757 gram). Creatinin (twenty-four hours) 1.455 grams (Johnson's method; two estimations). Phosphates calculated as phosphoric acid 1.03 grams. Chlorides calculated as NaCl 5.66 grams.

CASE V.

M_1, sister of Case II (H_3), a healthy-looking woman, about 35 years of age. Examination detected no disease of the nervous system or of thoracic or abdominal organs. In her case the attacks began in childhood, and continued at intervals of two to three months until her last pregnancy two years ago, during which they were much more frequent, sometimes recurring two or three times in one week. Since then for the past fifteen months she has been free from them. There was never any recognizable cause, and they came on at no particular time of day.

The first symptom is visual; apparently there is hemiopia of the upper halves of the visual fields, for she sees only the lower half of objects looked at. This gives her a warning to lie down, as the next symptom is hemiplegia, which sometimes comes on suddenly, as she states that if she were standing she would fall down. The affected limbs feel heavy, "like lead." The hemiplegia is generally right sided, but occasionally left sided; it is accompanied by loss of speech, but not of comprehension; the speech affection accompanies the hemiplegia, whether the latter is on the right or left side. The face is apparently not affected. She has a peculiar feeling of swelling or thickness on the same side of the tongue as the hemiplegia. There appears to be hemianaesthesia as well as hemiplegia, at any rate in some of the attacks, for on one occasion when tested by a pin prick there was no sensation on the affected side. There is no deafness, and no affection of the sphincters. After about two hours vomiting with severe frontal headache (bilateral) comes on, and the paralysis after the first attack of vomiting begins to gradually pass off. The headache always came with the vomiting, and never preceded the other symptoms. The patient has five children; the eldest, 9 years old, is Case VI; the younger ones have so far had no attacks.

CASE VI.

M_2, a boy, aged 9, was admitted to the Bristol General Hospital on November 30th, 1909. He had had two previous attacks of migraine with transient right hemiplegia during the preceding six months, from which he had completely recovered. He had had no other illness, and was a healthy, intelligent boy. He was left-handed.

On the morning of November 30th the boy complained of not feeling well and of a headache, and stayed home from school. His mother did not see him again until the afternoon, when she found that he was paralysed in the right arm and leg, could not stand, and could not speak. He also vomited.

On admission the patient was very cold and somewhat collapsed. His temperature was 95°. There was no head retraction, no convulsions, or muscular twitchings. There was right hemiplegia, complete; the paralysis was flaccid. There was paresis of the right side of the face, affecting the lower part most, as in the ordinary hemiplegic type; the tongue was protruded to the right. He spoke very indistinctly and with difficulty, and occasionally used wrong words. He recognized his mistakes and understood what one said to him. He had some difficulty in swallowing. The right knee-jerk was said to be absent on admission, but as he was only examined lying down this is doubtful; it was certainly present next day.

On the next day, December 1st, the temperature was 97.6°; respirations 20; pulse 80, regular; tension normal. There was still well-marked right hemiplegia with flaccidity and slight hemianaesthesia—that is, sensation to touch and prick distinctly less acute than on the left side. He was conscious of the position of the paralysed limbs. He was still dull and drowsy, complained of left-sided frontal headache, had difficulty in speaking, used words wrongly, spoke slowly and indistinctly, and had slight difficulty in swallowing; he could only take liquid foods.

Reflexes.—Elbow, supinator, knee, and ankle jerks present, normal and equal on both sides; abdominal reflexes present, cremasteric absent, plantar reflexes extensor.

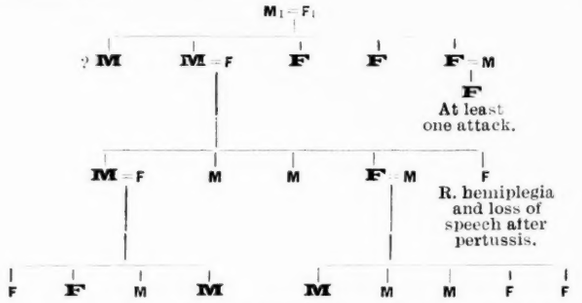
Cranial Nerves.—Well marked right hemiopia. Optic discs normal, except for some fullness of the veins. Smell normal.

No oculo-motor paralysis; no nystagmus; pupils equal, large, act to light and accommodation. Paresis of lower part of face on right side; orbicularis palpebrarum and frontalis muscles unaffected. Not deaf. Tongue protruded to right. Palate normal. No affection of sphincters.

On December 3rd there was still very slight defect of sensation to light touch, and prick on right side of face, front of chest and abdomen, and right arm and leg. No loss of sense of position of limbs. Paresis of right side of mouth and of right arm remained; the leg had recovered. There was no ataxy of movement. The reflexes as before, except that whilst the right plantar was of extensor type still, the left was flexor. He was still rather drowsy and speech was indistinct.

During the next two days the condition rapidly improved, and on December 5th he was normal, and there was no trace of paralysis left.

It may be added to the above that the motor loss was throughout much greater than the sensory, which was always slight; and that as this patient was the first member of the family to come under observation, and on admission we had no complete history with him, nor could he give any account of his two previous attacks, owing to the temporary loss of speech, the true nature of the condition was not at once recognized, and the electrical reactions were unfortunately not taken at the height of the paralysis. Later the muscles reacted well to interrupted current.



GENEALOGY OF A FAMILY WITH ATTACKS OF MIGRAINE WITH HEMIPLEGIA.

M_1 and F_1 had a numerous family (exact number uncertain), of whom four certainly, and probably five, were affected.
The heavy type indicates the affected members.

Seeing that, as I have shown, motor paralysis to such a marked degree as existed in these patients is extremely rare in migraine, it is first necessary to establish the point that the attacks are of this nature. As there is no exact clinical test or pathologico-anatomical change to which we can appeal to make the diagnosis, each case must answer to certain criteria, which will naturally be those symptoms which are generally recognized as typical of the migraine attack. The more a case departs from the well-recognized type, or presents features not hitherto recognized as component parts of it, the greater care must be taken that the typical characters of migraine are present.

Attacks of headache more or less exactly reproducing the phenomena of migraine are occasionally seen as symptomatic of organic disease, such, for instance, as a cerebral tumour. Organic disease in these cases can be positively excluded by:

1. The hereditary history.

2. Lapse of time in the older patients—the attacks have occurred for years—during which no sign of organic change has appeared.

3. The recurrent paralysis has not become permanent in any of them. In such severe attacks this of itself is remarkable, and is sufficient for the argument.

The following are the points on which I base the diagnosis of migraine for the actual attacks: (1) The marked hereditary tendency, direct transmission, and absence of other neuroses in the family; (2) the onset of the affection in most of the patients in childhood; (3) the characteristic visual phenomena preceding the headache, especially temporary hemiopia; (4) headache, generally unilateral; (5) the vomiting which generally accompanied the onset of the headache, and after which the condition of the patient began to improve; (6) return to the normal in the interval between the attacks; and (7) the temporary loss of speech and sensory disturbance which are well-known features of some severe attacks of migraine. In all these points the attacks in this family so exactly correspond and these features so regularly repeat themselves in successive attacks—this regularity of repetition of the phenomena of the attack in the same patient being another characteristic of migraine—that the diagnosis of migraine seems to me established.

The remarkable feature is the addition of hemiplegia, or in one case of paralysis of all four limbs and muscles of neck, which cannot be accounted for as a secondary result of the sensory disturbance present.

There are a few points in the attacks in this family worthy of further remark. First, the hemiplegia, loss of speech, and hemiopia were phenomena of the aura of the attack, and in all cases regularly preceded the headache. In most attacks in all the patients the hemiplegia was right sided, and much less often occurred on the left side of the body. The speech defect was on the outgoing side of the cerebral mechanism for speech, the patients either could not articulate or only imperfectly, but could always understand what was said to them. This is contrary to what is described as the usual condition when aphasia occurs in migraine, for "sensory" aphasia is stated to be more common than "motor," although the latter occurs. Some of these patients were, however, definite on the point that they could hear and understand, and knew what they wanted to say, but could not speak. I think, speaking generally, that in migraine the affection of speech is not infrequently of this type.

This speech defect occurred indifferently with either right or left hemiplegia—that is to say, it regularly accompanied the hemiplegia, and in the adult patients, as well as in the children. In the latter it is well known that aphasia may accompany either right or left hemiplegia of organic origin. This indifference to the side of the hemiplegia seems to me a point of great interest. It has been observed before that in cases of migraine with sensory disturbance speech defect might accompany sensory phenomena in the left arm, left side of tongue, or left hemiopia.

The attacks seem to be becoming more severe as they descend the family, the two children last affected have more severe attacks than their parents, so much so that in one of them the paralysis affected the muscles of the trunk and limbs on both sides.

The frequently sudden onset of hemiplegia is particularly noticeable; more than one of the patients stated that if it came on when they were standing they had fallen down, and one used to lie down on the first appearance of the visual aura to avoid a fall. This is comparable with the sudden onset of hemiopia in some recorded cases of migraine. The relation of the attacks to pregnancy in Case v is curious, and it is well to accentuate the points that in none of the patients, even in case of a fall from sudden hemiplegia, was there ever a momentary loss of consciousness, or muscular twitchings, or convulsions, or affection of sphincters, or spasm of the muscles, the paralysis being of flaccid type.

Lastly, the recovery is complete between the attacks, and in no case have they left so far any permanent paralysis or disability.

In relation to the diagnosis of these cases reference must be made to the form of recurrent paralysis known as "family periodic paralysis." There can, I think, be no question as to the marked differences which distinguish the attacks of the latter disease from those of my patients. I have already given the points which identify them with an unusual and severe form of migraine, and need not recapitulate these further than to say that severe headache, hemiopia, and sensory disturbances—other than occasionally tingling and numbness—are not present in "family periodic paralysis," which consists of a recurrent and transient flaccid motor paralysis, not of cerebral type—for example, there is loss of electrical irritability in the affected muscles—affecting usually the trunk, all four limbs (proximal parts first), and muscles of the neck.

Whilst the attacks are thus distinct, there is another question as to a possible relation between the two affections. As a rule, migraine does not appear in the family history of the victims of family periodic paralysis, but in one remarkable family described by Holtzapple,[11] the disease was closely associated with migraine. In four generations of this family, eighteen persons suffered from severe attacks of migraine, and seventeen from periodic paralysis. Of the latter, five were subject to both affections, twelve to periodic paralysis only, and thirteen to headache only. All the patients were descended from an ancestress who suffered from sick headache only, and in the branch of the family most severely affected, and in which three deaths occurred, the mother had migraine but no paralysis.

In some respects the family I have described above affords features which carry whatever relation there may be, if any, between the two diseases a stage further, for in it there is the very unusual addition to typical migraine of an extensive motor paralysis, with a closer hereditary transmission than is often seen in ordinary migraine, and in one of the patients last affected in the third generation the paralysis, in the attack, beginning as a hemiplegia rapidly spread to the opposite side and affected the neck muscles, so as to become general.

The character of the paralysis in the two affections is, however, so essentially different that any apparent connexion may be no more than the common tendency for one neurosis to be associated with another in the same or different members of a family.

In family periodic paralysis the seat of the lesion is in the muscles or in the junctions of the lowest motor neurones with the muscle fibres, whilst in migraine the paralysis is of cerebral type. It is impossible not to be struck with the similarity of the hemiplegia, accompanied by more or less degree of anaesthesia, in the cases described above, to the hemiplegia of functional disease, especially hysteria. There are, however, differences between them which probably indicate in this case also a difference in the anatomical seat of the lesion. For instance, in hysteria the alteration of the visual field is not a hemiopia, but a concentric contraction; the face altogether escapes, the paralysis is "ideational," and due to the dissociation of the highest psychical centres from those next below. According to Campbell, associated with each of the known cortical centres there is a corresponding higher or psychical centre. He describes a psycho-motor, psycho-sensory, psycho-visual, and psycho-auditory centre in close relation to the motor, sensory, visual, and auditory centres seated in the praecentral, occipital (calcarine), and superior temporal gyri. Dr. McDougall,[12] in his paper on the mode of action of fatigue in the nervous system, incidentally suggests that in hysteria the supply of energy is insufficient to overcome the resistances of the highest levels of the brain and to keep open the connecting channels.

In the recurrent hemiopia, disorders of sensation, and occasional paralysis of migraine the anatomical position of the lesion must be below these levels. It is important to note that these disorders occur early in the attack, precede the severe pain, and therefore they cannot be explained on any theory of inhibition due to the intensity of the latter. Moreover, abortive attacks are known in which transient hemiopia, aphasia, etc., are the sole features.

In Dr. McDougall's paper, referred to above, he attributes the phenomena of fatigue or exhaustion to such an increased ratio of the resistance to the supply of nervous energy at command at the synapses or junctions of the neurones that nervous impulses can no longer pass through, and the connexion between the neurones at the points of junction or synapses affected is interrupted. This increased resistance at the synapses may be induced by exhaustion or by accumulation of the waste products of activity.

It is reasonable to suppose that some endogenous or exogenous poisons may act in a similar way on the nervous system and produce paralysis by greatly increasing the resistance at certain synapses.

Without entering into a full discussion of the various theories of migraine, it seems to me that the disease may be best accounted for by the accumulation within the body of some self-manufactured poison, gradually accumulating until a periodical attack results, and showing a selective action on certain neurones, or rather upon their synapses, and possibly by becoming attached to their receptors preventing them from carrying out their functions. In view of the known selective action of various poisons upon special sets of neurones, there is nothing improbable in such a view of the localization of symptoms which characterize most attacks of migraine.

Such a view has, to my mind, more in its favour than the theory which is perhaps most generally accepted at the present time—namely, that vasomotor disturbance or spasm of cerebral vessels is the cause of the attacks of migraine. It must be admitted, however, that the pathology of migraine remains obscure in spite of the many explanations that have been offered, and, indeed, to suppose that in ordinary attacks the action of the poison remains localized to cortical sensory structures, whilst in cases such as the family above described there is in

addition a toxin able to act upon the kinaesthetic (motor) centres is but to state in other words a clinical observation and not to explain its essential nature.

4. There is still another form of motor paralysis associated with migraine—the so-called ophthalmic migraine (Charcot's "migraine ophthalmique"). I have left this to the last, as it is impossible to consider it fully in this paper, and its connexion with migraine is denied by good observers. Thus, it has been called hemicrania with third nerve paralysis.[13] Undoubtedly cases grouped together under this head own different pathological causes. Most commonly the paralysis is confined to the third nerve on one side, but in other cases of a similar kind the fourth, fifth, and sixth (and occasionally the seventh) nerves may be also affected. The reasons why some authors have separated these cases from true migraine are that in many cases there is no aura, no heredity, the pains may last for weeks, and some degree of paralysis persists in the intervals. There are, however, other cases which satisfy all the above criteria for ordinary migraine, and in which there is a return to normal between the attacks.

Probably the accounts have been written from two distinct groups of cases: (1) Cases in which intermitting attacks of third nerve paralysis are preceded by attacks of headache corresponding in clinical aspect (including aura and heredity) to typical migraine, and do not end in permanent paralysis; (2) cases which show periodic exacerbations, but in which from the first, or early in the course of the disease, there is a certain amount of persistent weakness which ends in permanent paralysis.[14]

In the first set of cases we may probably go further and say with Senator and Bernhardt that there is no recognizable lesion, whilst in the second group the lesions that have been found in the few cases that have undergone pathological investigation are (1) tumours (Karplus and Thomsen) at the base of the brain involving the third nerve, (2) a mass of granulation tissue, and (3) syphilitic lesions in the same situation.

Cases of this nature, however, form a clinical group so distinct from ordinary migraine that they are better considered apart from it until more is known about them.

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ON THE VALUE OF SERUMS AND VACCINES IN THE TREATMENT OF DISEASE.

BY

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IN the hospital to which I am attached are admitted almost every variety of acute disease, some in a favourable condition for treatment, but a great many others in a very unfavourable condition, but I have included in my results all the most unfavourable cases, so that a fair and accurate conclusion as to the value of these remedies should be reached.

Acquired Immunity.

In the case of certain diseases such as small-pox, scarlet fever, typhoid, and measles, one attack protects against another for many years or even a lifetime. In other diseases such as erysipelas, influenza, and pneumonia, a person may suffer from several attacks, and in the case of erysipelas and influenza may even be more disposed to other attacks. I think it will be granted, however, that every disease produced by an organism does confer a certain immunity for a longer or shorter period. We do not know precisely how the human body recovers from an acute infection by dangerous organisms. It is presumed that the virus becomes exhausted in a varying time, and so dies out, but it has been found that in the case of such diseases as acute pneumonia, diphtheria, typhoid, and cholera, certain antibodies antagonistic either to the organisms or their toxins are formed in the blood. It would appear that a process of immunization is going on during the course of an acute disease, and when this immunization is complete the disease comes to an end. Now we want to encourage and promote this good effect, and if by the administration of serums and vaccines we can assist the blood to produce immunity, we are going a long way towards promoting the recovery of our patient.

Antistreptococcic Serums.

I have during the last twelve years treated 210 patients suffering from acute streptococcic infections with injections of antistreptococcic serum—an antibacterial serum prepared by inoculating a horse with increasing doses of streptococci until immunity is complete, and then using the serum of the horse as a remedy. Some authorities hold that all the various streptococci are in reality the same organism modified by circumstances. Marmorek holds this view and Aronson finds that an antitoxin produced from any single strain will produce an immunity against them all. My first 28 cases were treated with a dried serum manufactured from a single strain of streptococcus which was I believe isolated from a case of erysipelas; 17 of these cases were puerperal septicaemia, all of a severe type and generally sent into hospital when the disease was far advanced. In spite of this we observed in a fair proportion of cases distinct benefit followed the injections, which were then given under the skin, and a few patients recovered whom we expected to die. I noticed that the reaction from a single strain serum was always more severe than from a serum made from many strains. Eight cases of acute erysipelas were treated with this serum and in all cases recovery followed its use without the formation of pus. The remaining 4 cases suffered from cellulitis of a streptococcal origin and in 3 cases the result was good, but in 1 it had no effect and the patient died.

In my opinion we have made a distinct advance in preparing a polyvalent serum prepared from 20 to 26 distinct strains of streptococci. We have treated 182 patients with polyvalent serum, and I can unhesitatingly say that the results are most gratifying. The more local infections appear to do better than the general systemic infections such as puerperal septicaemia, but even in this formidable disease we have obtained excellent results. It is our general practice now to inject the serum into the rectum instead of under the skin; 20 or 30 c.cm. of serum are mixed with 40 c.cm. of normal saline solution and gently poured into the rectum, which has been previously washed out with a little water. The serum is rapidly absorbed, and seems to act quickly and efficaciously without any toxic effects such as urticaria, erythema, or headache, which sometimes follow injections under the skin.

Puerperal Septicaemia.

The cases vary enormously in intensity, but must be carefully distinguished from sapraemia, the result of absorption from retained débris within the uterus, in which emptying the uterus generally ends in recovery. In puerperal septicaemia we have to deal with a systemic blood infection with streptococci, and we must direct our efforts to assist the blood in producing an immunity. In many cases the violence of the infection is too acute and the woman is destroyed, but in a great many instances much can be done; and, combined with general and restorative treatment, injections of 20 or 30 c.cm. of serum twice daily seem to have a good effect. Every case of streptococcal infection, whether mild or severe, is invariably treated with rectal injections of polyvalent serum. Sometimes it is only necessary to give one or two injections before general improvement commences.

Erysipelas.

In acute erysipelas we get the very best results from serums; in fact, I look on all cases as favourable if there is no formation of pus or extensive subcutaneous cellulitis. In these cases extensive incision and drainage must be combined with large doses of serum two or three times daily.

Malignant Endocarditis.

We have treated three cases of septic endocarditis associated with rigors, sweating, and very high temperature. In one case which we did not expect to live the girl, aged 20, recovered, and was discharged with a loud systolic rough murmur, but with all infective signs in abeyance. She returned to hospital two months ago with a reinfection, and at once asked for some more injections, as she had felt benefit three years ago. A few were given, and she is decidedly better. In the other cases, beyond temporary relief, no real benefit was obtained from serum.

Acute Tonsillitis.

Nearly all these cases are due to streptococci, often they relapse, and are associated with severe constitutional symptoms. If we can get these cases before the formation of pus, a few injections will actually abort the attack, and the patient gets rapidly well. Even if pus has formed, serum seems to relieve the symptoms, and certainly prevents the debility and severe toxaemia which so often follows. In operation on the jaws and tongue, especially for malignant disease, where septic bronchitis and pneumonia sometimes follow, a dose or two of serum before operation often has an excellent effect in preventing secondary sepsis.

Antidiphtherial Serum.

I am a profound believer in this serum, both as a curative and as a prophylactic remedy. In 1894 I had the pleasure of recording in the BRITISH MEDICAL JOURNAL a number of cases of diphtheria treated with Aronson's serum, and since then I am more and more convinced of the value of the serum; if given within forty-eight hours of the onset of the disease it is almost a specific remedy. Associated with diphtheria there is often secondary infection with staphylococci, and these cases can often be cleared up after the diphtheria is over by preparing vaccines from the discharges from the nose, ear, and throat, and injecting them into the patient.

Antitetanic Serum.

I have not seen a case for over six years, but we treated eight cases; four of them were acute, that is, the symptoms developed within seven days, and were all fatal. In the remaining four cases the symptoms were delayed until after ten days, and they ran more or less a subacute or chronic course. In all the cases we gave large doses of serum, and all seemed to be benefited. In one the dried serum was given by the mouth in the intervals between the spasms, and strange to say the boy recovered. It is difficult to estimate exactly the effect of the antitoxin, as many cases of subacute tetanus recover without it, but my impression is that it helps, and I should always be inclined to give it.

Tuberculosis.

Maragliano's serum for tuberculosis is prepared from the blood of a horse which has previously been immunized with living cultures of tubercle bacilli; 1 c.cm. is injected on alternate days. The serum is said to be bacteriolytic as well as antitoxic, and Maragliano claims to have obtained excellent results in cases of tuberculosis without secondary infections. I have used the serum in fourteen cases of pulmonary tuberculosis, and although in some instances good effects seemed to follow its use, I have discontinued it in favour of tuberculin.

Vaccines.

The greatest care must be taken in the preparation of vaccines, and personally I have only used those which have been prepared for me. It may not be strictly correct to include tuberculin amongst the vaccines, but for my present purposes it is convenient.

Tuberculin from Human Sources.—With Koch's tuberculin R., which is prepared from bacilli of human origin, 110 cases of tuberculosis have been treated, including tuberculous glands in the neck, tuberculous peritonitis, tuberculous joints and sinuses, lupus, tuberculous meningitis, and genito-urinary tuberculosis. In the localized forms of tuberculosis, most of which I believe to be of bovine origin, and conveyed to children in infected milk, I am convinced that Koch's tuberculin R. has an excellent effect, except in those patients in whom there is some pus encysted in the body, whether in the interior of the joint or in a bone under pressure, or as an abscess in a lymphatic gland. In these cases there is a danger of tuberculin causing dissemination of the bacilli, with a resultant blood stream infection. It is a good rule never to give tuberculin if any pus is localized in the body. In many cases a course of tuberculin has had the effect of greatly reducing enlarged tuberculous glands of the neck, by dispersing the peri-adenoid tissue and causing a general freeing and loosening of the glands themselves, while in some the enlarged glands have entirely disappeared. If, however, there is any tendency to suppuration the glands must be opened, and in all cases the pus should be liberated. I feel convinced, however, that the extensive dissection of glands in the neck is wrong in principle, and sometimes leads to a general tuberculosis which is fatal. In tuberculous peritonitis tuberculin has a splendid effect, and, combined with operation and drainage, many of my cases have been completely cured. In genito-urinary tuberculosis ten or twelve injections of tuberculin has often had an excellent healing effect when everything else has failed.

Pneumonia.—The Klemperers were the first to attempt the treatment of pneumonia, and Washbourn did some splendid work on the subject; latterly Wright has brought out a pneumococcic vaccine carefully standardized. We have used injections of this remedy in twenty-eight cases of acute lobar pneumonia. Only in severe cases were the injections given, and in thirteen which recovered we thought we had observed some reaction of a favourable character, such as immediate reduction of temperature and pulse with the onset of perspiration. Personally I would like to preserve an open mind on this remedy, but I am inclined to the belief that it does good. In one case where a whole family developed pneumonia one after the other I gave a prophylactic injection to a daughter who had been nursing the mother, and she certainly escaped infection, but whether or not it was due to the injection I cannot be certain.

Staphylococcic Infections.—It is here that the very best results of vaccines are obtained. In acne of a pustular nature, boils and carbuncles, after the nature of the infecting organism has been determined, a corresponding vaccine has in a large number of cases led to complete and lasting recovery. Even in cases of boils and carbuncles associated with glycosuria vaccine treatment has been useful, but not to the same extent in cases of diabetes. It is my usual practice to make a growth from the patient, and then to obtain the corresponding vaccine from the laboratory. In many cases of acne of a chronic indurative character, however, we must be prepared for disappointment.

Coley's Fluid.—This powerful remedy is reserved for those cases of inoperable carcinoma or sarcoma in which every other form of treatment is useless. I have frequently observed in hospital that an acute attack of erysipelas will devour and clear up a growth or even an attack of lupus, and Coley's fluid is based on this principle. I have used it in 9 cases, 7 of which were uninfluenced, and 2 recovered. In 3 cases in which it is being used at present slow necrosis and an arrest of the growth is commencing. It is a most dangerous and powerful remedy, and must be used with the greatest caution; even half a minim sometimes produces the most violent reaction with a temperature of 105° and a pulse of 130. The reactions, however, become gradually less, and even 5 to 6 minims may be tolerated in a few weeks. In all otherwise hopeless cases it is justifiable to try it, as in some patients we get a happy surprise.

Typhoid Fever.—Wright has been the pioneer in the vaccine treatment of typhoid fever. His vaccine consists of cultures of *Bacillus typhosus* grown in broth for four weeks, and then sterilized by heating for ten to fifteen minutes at 60° C. A small amount of carbolic acid is then added for preservation and to ensure sterility. Favourable results have been recorded from all over the world, and it is possible that by its uniform adoption a great decrease in the death-rate from typhoid will follow, more especially abroad. We have used Wright's vaccine in eleven instances, nine of which recovered. The other two patients both died from perforation and haemorrhage. I cannot be sure that the vaccine was of any real benefit; it appears to be more suitable as a prophylactic than a curative measure.

A CLINICAL METHOD OF MEASURING THE ANTITRYPTIC INDEX,

ILLUSTRATED BY ITS RESPONSE TO VACCINES.

BY

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THE object of this investigation has been to devise a method of measuring the antitryptic index suitable to ordinary clinical work, and applicable to the regulation of the size and frequency of the doses of vaccines. The method will be illustrated by a chart showing the daily variations in the index during a period of three months in a case of pyelonephritis (with relapse) treated by tuberculin and *coli* vaccine.

A few introductory remarks may be helpful. If a viscous solution of casein is incubated with trypsin, digestion of course rapidly occurs, and is manifested by the loss of viscosity of the mixture. This may be measured by the viscosimeter—that is, a pipette with a fine capillary stem of thermometer tubing. If now a drop of ordinary blood serum is added the rate of digestion is enormously retarded, and if the serum has been taken from a patient suffering from cancer, tuberculosis, or any inflammatory or cytolytic disease, the rate of digestion will be still more powerfully inhibited. Hence if two mixtures of similar quantities of casein, trypsin, and serum (one normal, the other from the patient) are digested for 4½ hours, and the number of seconds that each takes to drip through a viscosity pipette is compared, the two numbers will give a measure of the antitryptic power of the patient's blood. Supposing the normal mixture drips through in 100 seconds and the pathological mixture in 103½ seconds, then the antitryptic index may be charted as 3½.

This method of estimating the relative antitryptic values of different serums, based on Bayliss's well-known method of estimating the velocity of tryptic digestion by the viscosimeter, was devised by Dr. Golla and demonstrated by him at Belfast[1] in July, 1909. This observer had also successfully measured the relative powers of normal and pathological serums by an adaptation of Victor Henri's method of electro-conductivity, as also had Dr. E. C. Hort[2] by adapting Sörensen's method of measuring the degree of amino-acid liberation during a tryptic digestion.

Both of these methods have been shown by these observers to give excellent results, but they are both of them complicated in apparatus and procedure, and the chemical method has the additional disadvantage that it demands more blood than can readily be obtained from a finger-prick. Now, to obtain several cubic centimetres of blood from a vein is a very neat and painless process when properly done, but it cannot be repeated often, and sometimes makes the patient feel faint and queer, as I can testify from personal experience. To the patient, the value of the information gained may make this worth his while, but to get an equivalent supply of normal blood is often a matter of serious practical difficulty. I have selected, therefore, the viscosity method, though I found that the technique required considerable modification in order to adapt it to clinical purposes.

After experimenting for four months, I found that by digesting for four and a half hours in the incubator instead of at room temperature, and by adding another 3 c.cm. of fresh casein just before measuring the viscosity, the antitryptic power of a serum could be reliably measured with only 0.08 c.cm. of serum and with quite homely apparatus.

Method.

Ordinary glass tubing is washed with acid and then with water and dried. It is then drawn out at intervals of 3 in., whereby a number of cylinders with tapered ends are made. If held horizontally in the drop of blood on the patient's finger, these fill themselves without forming bubbles. The finger must be warm and preferably should be swung round the head before applying the tourniquet of rubber tubing.*

* I find the best pricker is made by pounding some sheet glass, picking out the sharpest fragments, mounting each with sealing-wax on to a glass rod, which is fixed into the cork of a small phial containing a little wool moistened with formalin. These are clean and painless, and last for weeks.

The tubes, when sealed, are put for an hour into the incubator to contract the clot, after which they may be kept for several days at the temperature of tap water without alteration of the index.

Casein Solution.—This is made by weighing 6 grams of casein (prepared according to Hammarsten) and stirring it into a paste with 30 c.cm. of distilled water warmed to about 40° C. After adding 5 c.cm. of decinormal NaOH, the mixture is stirred till the particles are all dissolved with the help of five drops of liq. amm. fort. Mix this solution with 95 c.cm. of water, to which five drops of formalin have been added, and filter through paper (or wool) carefully. Repeat the filtration every day the solution is used, as a glutinous precipitate soon forms.

The Piston Pipette (Fig. 1).—I should be very sorry to dispense with the help of this device, adapted from the design of my friend, Mr. Upcott. It consists of a home-made capillary pipette with a little bulb, B, holding about 0.1 c.cm. up to the mark, ↑, which may conveniently be made of a filament of cold sealing wax laid across the hot glass. The butt end of the pipette slides freely inside a larger glass tube, and the piston-joint is

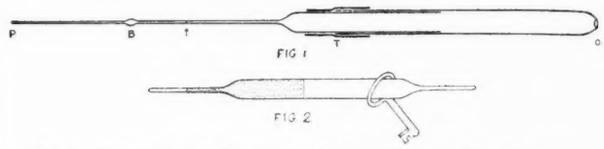

Fig. 1.—Piston pipette for measuring small quantities of serum. It consists of two tubes sliding one within the other, with a connecting collar of rubber tubing, T. One tube terminates in a capillary and a small bulb, B; the other in an orifice, O. Drawn one-third natural size.

Fig. 2 illustrates the use of a small key as a lever in breaking a blood capsule at the file mark without the risk of breaking the capillary ends. One-third natural size.

made tight by a collar of rubber tubing, T, fitting snugly, and lubricated by a drop of water. A finger over the hole, O, converts it into a syringe, but the moment the finger is removed the internal air pressure is equalized, and the contained fluid (if held horizontally) remains stationary. Final accuracy is obtained by removing any slight excess of fluid, as a succession of dots on the finger which is repeatedly tapped against the point, P. Alternatively the hole, O, can be applied to the mouth, and fluids can be aspirated or expelled by suction, as when washing it out.

Trypsin Solution.—Four grains (0.26 gram) of Armour's trypsin are stirred into a paste and mixed with 100 c.cm. of water which has been freshly drawn from the tap to secure uniformity of temperature. The solution is filtered twice, and must not be prepared till just before use, as it rapidly deteriorates in the absence of substrate.

The chart was made by collecting the blood daily and keeping it in the cool till the fourth day, when the antitryptic power was measured against one normal serum (my own). Thus the estimations were done in batches of five, and hence five similar short test tubes were required.

Into each 5 c.cm. of casein solution are measured; 0.08 c.cm. of serum (approximately) is then very exactly measured into a capillary pipette (Fig. 1), which is rinsed out thrice into the test tube of casein. The pipette is then rinsed out four times in water and dried ready for the next serum by toasting it in front of a gas fire, expelling the steam by blowing, and cooled by sucking in cold air. The point may either be plunged into the serum, or if scanty it is best to open both ends of the capsule and pour the serum from capsule to pipette held mouth to mouth. It is often difficult to break the blood capsules at the thick part without breaking the capillary end. If the handle of a little key is slipped over and used as a lever the tube will always break at the file mark (Fig. 2).

Each casein-serum mixture is shaken up as soon as it is made, and every test tube is conspicuously marked—for example, N, P_1, P_2, P_3, P_4—with a grease pencil; 1 c.cm. of trypsin is now added by pipette to each test tube. All five test tubes are corked, shaken, and incubated for four and a half hours at about 40° C. They are then cooled under the tap and allowed to stand until next morning, if, as usually happens, this is most convenient.

Measurement of Viscosity.

Five little flat-bottomed, steep-sided glass cells are required, about 2 in. in diameter and 1 in. high, which can be covered with a watch-glass and immersed in a photographer's developing dish (to act as a water bath). They are numbered in correspondence with the five test tubes; 3 c.cm. of fresh casein solution are now added to each test tube, and the mixture is shaken and poured into each dish. The fresh casein is added because I

found that acid decreases the viscosity of casein, and hence the amino-acids accumulated during the four and a half hours' digestion will accentuate the difference in the readings of the viscosimeter, and thus render small differences in the antitryptic activity of the serums more measureable. Also the serum will be acting in a state of greater concentration.

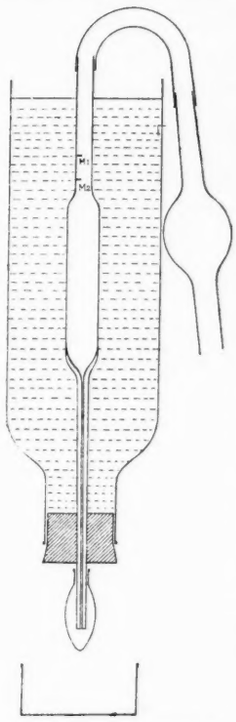

Fig. 3.—Viscosimeter, consisting of a pipette surrounded by a water bath, for measuring viscosity. It consists of a capillary tube surmounted by a bulb holding about 7 c.cm. This is connected by rubber tubing with a glass bulb which conveniently converts intermittent efforts of suction into continuous suction. The water bath is simply an inverted pint bottle with the bottom cut off. Below a glass capsule is shown in section. A rubber teat protects the capillary orifice from drying when not in use. The drawing is one-third natural size.

The five dishes now contain 6 c.cm. of casein-trypsin-serum digest *plus* 3 c.cm. of fresh casein. When they have stood for an hour or two to attain a condition of temperature equilibrium with their surroundings—very important—each solution is aspirated in turn into the viscosimeter and the number of seconds which each fluid takes to run through from the mark M_2 to the top of the capillary portion (see Fig. 3) is measured with a stop-watch. Each observation is repeated twice, or more if not concordant. The start should be a flying one from the mark M_2, starting from rest at the mark M_1.

Owing to the marked effect which temperature has on viscosity, the laboratory must be kept at a constant temperature during and before the observations. The whole apparatus should be considered as immersed in the air of the laboratory as in an air bath, so that a separate room is desirable. The observer must not touch the glass dishes with his warm hands, and the heat of his body must not be allowed to raise the temperature of the bath surrounding the pipette by more than 0.5° F. during the five observations.

If the temperature of the air is inconstant, a lower water bath may be necessary; the developing dish (or circular tray of perforated zinc) stands supported on a block inside it. Bits of fluff must on no account be allowed to get into the digest, and bubbles of air which have a way of clinging to the mouth of the pipette will surely vitiate a reading. But if these troubles be avoided the readings will with practice become very concordant, and should not differ by $\frac{1}{2}''$.

The protocols are tabulated thus:

G.H.—Serums of April 18th, 19th, 20th, 21st.

Time.	Normal.	Patients.				Temperature of water bath.
		No. 1.	No. 2.	No. 3.	No. 4.	
1.30 a.m. ...	73.2″	74.0″	74.7	75.2	72	Before, 53° F.
	73.2″	74.1″	75.2	75.4	72	After, 53° F.
	73.0″	—	74.7	75.3	—	
Difference	—	+0.9″	+1.5	+2.1	−1.2	
Add 27% ...	—	+1.1″	+1.9	+2.6	−1.5	

I add 27 per cent. here to bring results to a constant normal of 100″, so as to make the different parts of the curve (which has a fresh normal every four days) comparable. If the normal had come out at 70″, for instance, I should have added 30 per cent.

The results are plotted on the curve shown (Fig. 4), which is probably unique in being a daily record of the antitryptic index in an acute relapsing illness treated with vaccines during a long period.

In sucking up the serum into the measuring pipette a proportion of red cells will often be included. The mixture

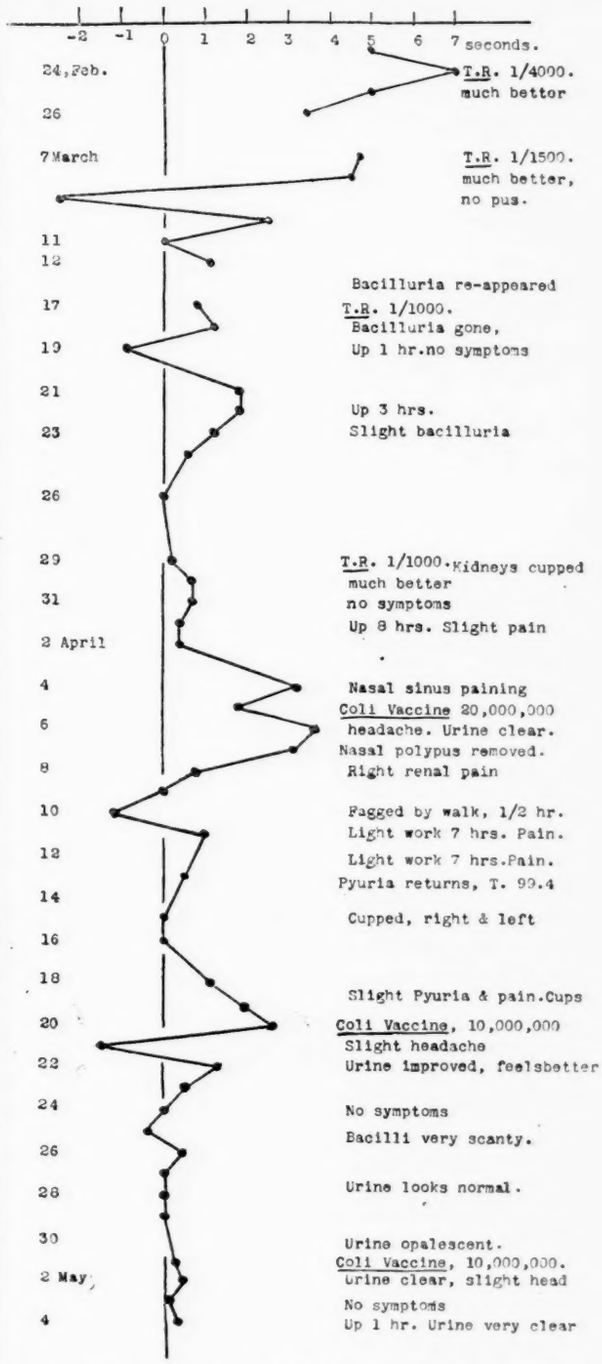

Fig. 4.—Chart showing the daily variations of the antitryptic index during two and a half months in a case of pyelonephritis treated by tuberculin (four injections) and *coli* vaccine (three injections).

has, I think, a slightly less antitryptic power than pure serum, but side experiments indicate that the effect is negligible in slight degrees of red cell contamination.

Illustrative Case of Pyelonephritis Treated with Vaccines, Showing Their Effect on the Antitryptic Index from Day to Day.

The patient (female, aged 27) showed in her history a remarkable susceptibility to bacterial invasion. At the age of 12 she very nearly died of tuberculous peritonitis, but her natural desire to disappoint her schoolfellows in the band (whom she heard practising the Dead March for her benefit), doubtless contributed to her recovery.

Next came slight tuberculous glands, continuous amenorrhoea, and tuberculous disease of the bone and skin of the great toe, which, after thirteen operations, yielded to amputation.

Then she developed a persistent nasal catarrh, from which I isolated the bacillus of Friedländer, and prepared a vaccine which did temporarily stop the rhinorrhoea, but did more harm than good. A nasal polypus was then removed, and was followed by infection of the maxillary antrum. This was drained and washed, but the other sinuses became infected one after the other. All the sinuses have now been operated upon except the sphenoidals, and now, by wearing a tiny style to drain the frontal sinus, the poor girl seems to have been given relief from this trouble. However, after each operation urethral catheterization became necessary, and at the last one a cystitis due to *B. coli* infection was acquired in spite of every precaution. It spread up to the kidneys, causing a critical illness (February 6th, 1910).

The chart commences two weeks after this had passed its acute stage, while there was still pain and tenderness in the kidneys, and much pus in the urine. Though the temperature was normal, the antitryptic index was high (7° delay). I did not dare risk the possibly injurious effect of a *coli* vaccine at this stage, though if one could have foreseen how obstinate the case would prove, a vaccine would have been worth the risk. As she had previously reacted very well to tuberculin (it always acted like a strong tonic) I gave her a small dose of T.R. ($\frac{1}{4000}$ mg.).

This and three other doses had an unmistakably good effect on all her symptoms, and also on the antitryptic index. A relapse, however, occurred, due partly to the necessity of her having another nasal polypus removed. This probably caused the big rise in the index about April 4th. The dose of *coli* vaccine she then had was probably slightly too large (20 million), as it produced a preliminary rise in the index and a fall delayed too long. The dose on April 20th was probably correct, as it caused a prompt and decisive fall in the index (4°), but of course one cannot generalize on such slender evidence. A vaccine appears to cause no fall of a normal index, but too large a dose would no doubt produce a rise, so that in either case the index may afford valuable guidance.

Those who are accustomed to opsonic curves must bear in mind that our object is to coax the curve *down* to the normal instead of trying to force the curve *up*, as in opsonic work.

Dry cupping I found of great benefit in this and similar cases, but I could not disentangle any effect on the antitryptic index attributable to it.

Urotropin, as usual in my experience of a *coli* urinary infection, did no good, but helmitol, as usual, proved distinctly helpful.

Methylene blue did no good in this case, and possibly harm.

The index varied independently of the temperature, proving much more sensitive to the vagaries of the kidneys and to the influence of vaccines.

Conclusions.

1. It is possible by this method to measure the antitryptic index with only $\frac{1}{12}$ c.cm. of serum, which is easily obtainable from a finger-prick.[1]

2. It appears probable that repeated observations of this index may give valuable guidance in the amount and frequency of doses of vaccines.

3. A suitable dose apparently lowers a raised index sharply without a preliminary rise (vide chart, March 8th and April 21st).

4. A dose which is unduly large seems to cause a preliminary rise and a delayed fall (vide chart, April 5th to 10th.

5. Tuberculin (T.R.) markedly improved the symptoms and an index raised by a *coli* infection, showing that the effect is not entirely a specific one. Although the patient was tuberculous there were no tubercle bacilli in the urine.

6. The present patient seems defective and abnormal as regards her immunization machinery, and the index in other cases may react differently.

7. The curve of the antitryptic index is perhaps more staid and moves in straighter lines than a chart of the opsonic index, probably because it is so much more accurately measurable. This consistent behaviour of the curve is, to my mind, strong evidence of the reliability of this technique.

8. In this chart the index displays a quality which simulates inertia, for whenever it falls suddenly it is apt to overshoot the normal line and to become a *negative index*, like a heavy, quickly-moving lever.

9. This throws some light on negative indices, which as isolated observations were less intelligible.

10. This method becomes a possible competitor with the opsonic index as another means of measuring immunization response.

References.

[1] Golla, Proceedings of the British Medical Association, Belfast, July, 1909. [2] Hort, Diagnosis of Malignant Disease by Estimating the Antitryptic Power of Cancerous Serums, *Clinical Journal*, June, 1909; and Proceedings of the British Medical Association, Belfast, July, 1909.

ON THE VALUE OF TEST MEALS AS A GUIDE TO INFANT FEEDING.

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Three years ago I started "infant consultations" in North Kensington (Notting Dale), with the help of the Kensington Health Society.

The mothers brought their infants once a week for advice because they were not progressing favourably. The majority were breast-fed, and, as is usual in these cases, friends told the mothers to wean the child. It seemed to me it would be a help in the elucidation of this problem to follow Professor Budin's plan and weigh the infant before and after a breast feed, and so discover at any rate the quantity of milk it obtained, and I have found this method to be of great practical importance. The number of breast-fed infants that "go wrong" is really amazing, and I feel quite certain that a large proportion of the deaths from gastro-enteritis attributed to bottle feeding are in reality breast-fed infants who have been artificially fed as a last resort. I have watched several of these cases, and I can positively say that the initial disturbance in nutrition started whilst the infant was breast-fed, and that artificial feeding was only resorted to when the degree of wasting had become noticeable to friends and relations.

In the case of breast-fed infants there should be some sort of co-ordination between the supply on the part of the mother and the demand on the part of the infant. A strong infant, by reason of its active powers of suction, affords the appropriate stimulus for a parallel activity on the part of the secreting gland, while the feeble nursling, on account of its indifferent powers of stimulation, excites little reaction in the breast. In a considerable proportion of cases there is no co-ordination between the supply and demand; sometimes there is too much milk, and sometimes not enough. Apart from the physiological test—namely, the progress of the infant—there is no way of finding out how much milk an infant receives unless we weigh the infant before and after feeding on very accurate scales; the amount consumed is estimated by noting the difference in the two weighings. This method is known as the "test feed." The following case illustrates its practical application:

A woman came to my consultations with a very wasted infant aged 2 months, and weighing 6 lb. She had fed it entirely on the breast, and assured me that it obtained the milk because it sucked for about ten minutes and then fell asleep. A "test feed" was arranged, and two hours after the last feed the infant was put to the breast. The scales proved that it obtained no milk at all. Milk could, however, be easily squeezed from the nipple, showing that an adequate supply was present. I ordered the mother to give 1 oz. of cow's milk with 1 oz. of barley water alternately with the breast feedings. During the following week the test feed showed that the infant obtained ½ oz. from the breast, and the child had increased 4 oz. in weight. She continued to feed in this manner for another week and the test feed then showed that 1 oz. was obtained from the breast, the child having gained another 5 oz. in weight. At the end of a month's treatment 2 oz. was obtained from the breast, and the child had gained nearly 1 lb. The cow's milk was now discontinued and the child was fed entirely on the breast till it was 8 months old.

Irregular feeding is a frequent cause of vomiting and diarrhoea in breast-fed infants; the scales have often shown what small quantities these infants obtain, and when the mothers are told to feed "by the clock," the result is that the vomiting and diarrhoea cease and the child obtains often double the quantity of nourishment from the breast. When irregular feeding is persisted in, the child begins to waste, the mother then commences bottle feeding, with of course a bad result; should such a case end fatally, the doctor in attendance, if he had not inquired into the previous history, would naturally assume that bottle-feeding was the cause of death.

Another interesting observation that the test feed has disclosed is that among breast-fed infants it is not always those who are inadequately fed according to our accepted scientific data who suffer from wasting, but often those who receive an adequate or even excessive amount. I have notes of at least forty cases in which the infant appeared to thrive and maintain a good weight curve on half the quantity of food that it should normally obtain; for

instance, it is a common experience to find that an infant 3 or 4 months old is fed ten times a day and only obtains 1 to 1½ oz. of milk at a feeding, or about 12 oz. in the twenty-four hours. Evidence from an independent source confirms these observations, for Dr. Eric Pritchard at his consultations at the Marylebone Dispensary has come to exactly the same conclusions.

A starvation diet is hardly likely to promote active nutrition, so that in cases in which the test feed proves that the child is maintaining its weight on such a small amount of milk, I usually supplement the defective supply with additional feeds from the bottle. The following case, however, will show that this is not always necessary.

M., aged 1 month, weighing 8 lb. 5 oz., obtained 2 oz. from the breast. When he was 3 months old he obtained 4 oz. from the breast, and weighed 12 lb. 5 oz. At 4 months, the infant obtained only 2 oz. from the breast, and weighed 12 lb. 14 oz. At 5 months he obtained 2¾ oz., and weighed 15 lb. I felt inclined to give some cow's milk as well, but the child was satisfied, vigorous, and had well developed muscles, so I refrained. At 6 months he obtained 3¼ oz. from the breast, and weighed 16 lb. At the seventh month he obtained 3 oz. from the breast, and weighed 16 lb. 11 oz.

This child is still attending the consultations, and at present I see no reason why I should supplement this deficient supply of food, because evidently the quality of the milk must be very high. A wasted child, aged 2 months, and only weighing 6 lb. 10 oz., obtained 3 oz. from the breast; this is rather an excessive amount for this age. In a week's time he had lost 4 oz. in weight, and the test feed showed that he still obtained 3 oz. from the breast. In this case the quality of the milk must have been very deficient.

I frequently have infants brought to me who have been artificially fed from the first week of life, owing to the belief that the breast milk had "dried up" on the fourth or fifth day. I regret to say that some of these cases came from maternity institutions. I am sure that no one, however skilled in maternity work, can possibly tell, apart from the test feed, whether the infant obtains a small quantity from the breast or not. To show how mistakes can be made I will quote the case of an infant born in one of our maternity institutions.

The baby was 2 months old when I saw it, very wasted and was having the bottle. The mother told me her milk had disappeared on the fourth or fifth day, and that the nurse said she must feed the baby on the bottle. The financial problem on leaving the institution worried the mother a good deal, so she put the child to the breast now and then "when the nurse was not looking." The test feed showed that the child obtained 2 oz. from the breast. I told the mother to stop the bottle and feed only by the breast. The child did remarkably well, and there was no further trouble.

Mistakes such as this could easily be avoided if the test feed was employed in all doubtful cases.

During the colostrum period the amount of fluid secreted is always extremely limited. The milk is thought to "dry up" on the third or fourth day, because at about this time the breasts, which have been previously hard, often become soft and smaller owing to the resolution of the gland cells into a colostrum-like secretion.

I have seen many cases of dyspepsia and wasting in infants who have never had a chance of passing through the colostrum period (which usually lasts from ten to fourteen days), but have been fed on milk mixtures from the very commencement.

Colostrum is a bland, unirritating, non-coagulable fluid, and at the appointed time Nature adds the casein very gradually. The whole process may be regarded, in Dr. Pritchard's words, as an "educational" one, in which we can imagine the digestive processes being trained to deal with the clot at a later date. It is easy to see that cow's milk cannot be a suitable food at this early age. I have notes of several cases in which vomiting persisted for two or three months after this initial mistake was made. Infant foods were tried one after the other with a like result, and I only succeeded in arresting the vomiting by giving peptonized milk for some time, and gradually weaning the child on to citrated undiluted milk.

When cow's milk is added to the diet, the knowledge we obtain from the test feed is valuable. Take the case of a child 5 months old, who only gets 2 oz. from the breast—if the regular allowance of 4 or 5 oz. of modified milk were given in such a case gastric disturbance would be a likely consequence. I have seen many cases of mixed feeding, in which the mother has followed the printed instructions supplied to her with regard to the quantity of milk which should be given at a particular age, and where the result has been disastrous. I have in some of these cases proved by the test feed that the mixtures were in these particular instances far in excess of what the child required; and when I made the quantity of cow's milk to correspond to the amount obtained from the breast a more peaceful state of things resulted.

Up to the present time 360 infants have attended my consultations. During the first two years there were 5 deaths due to gastro-intestinal disease; during the last year no deaths from disease of the alimentary canal have occurred. The number of attendances has been 595 during the last year.

OVARIAN GRAFTING AND MENSTRUATION.

BY

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ONE of us has been making a special study during the last few years of the question of ovarian grafting in the female subject. This grafting consists in implanting under the skin of the abdominal wall one of the ovaries which has been removed during a subtotal hysterectomy. The question of grafting an ovary from one woman into the abdominal wall of another subject, and also of grafting an ovary which has been preserved in ice during a period of from one to twenty-five days, has also been studied.

In all these cases the grafting has succeeded. The ovary has retained its original size for a period varying from one month to three years, and has exhibited at different times certain congestive phenomena which have stimulated those which normally take place just prior to menstruation. The results of these inquiries have been published in a thesis by Scheurer.[1]

The question of interest at the present moment is to know what actually takes place in a woman in whom both ovaries and tubes have been removed while the uterus has been left in place, and in whose abdominal wall one of the ovaries, apparently in a healthy state, has been implanted. Such a patient, after recovery from the operation, possesses a uterus in a normal position and an ovary in an abnormal position. Is it possible for such a utero-ovarian combination to present the congestive phenomena associated with menstruation?

We have already published two cases with details upon the subject without being able to formulate any definite conclusions. In the case published below normal menstruation occurred, accompanied by enlargement of an ovary which had been implanted four and a half months previously:

E. G., aged 29, was admitted to the Hertford British Hospital on October 28th, 1909, with a history of abdominal pain on the left side of one month's duration. She was unable to assign any cause for the onset of the pain, and there was no history of miscarriage. There was slight leucorrhoea, but no examination was made to demonstrate the gonococcus. The patient had had one child, who was aged 4 years. Menstruation, which had commenced when she was 13 years of age, had been regular. Examination showed that she was suffering from double salpingitis, the disease being most marked on the left side. Treatment by rest in bed, daily douches, and enemata was undertaken and continued up to December 10th, 1909. On that day both tubes and ovaries were removed, and the right ovary, which appeared to be normal, was grafted into the abdominal wall on the right side. For some days following the operation there was complaint of pain on the right side of the wound, and the grafted ovary was tender upon palpation. These symptoms, however, quickly subsided, and she was dismissed well on February 10th, 1910.

On May 4th the patient came back with the complaint that the abdominal pain had returned, and then she gave the history of the following events, which had occurred since her discharge on February 10th. There had been slight yellowish-white vaginal discharge, which at times had had an offensive odour, and had necessitated her taking vaginal douches. Six weeks prior to her return—that is, on February 20th, or ten weeks after the operation—she had acute pain on the right side of the abdomen. This pain had come on suddenly and continued six

She noticed that there was a swelling on the right side the abdominal wound; there was no vaginal discharge of blood. The pain gradually passed off, and her state of health again became satisfactory. On April 26th, 1910—that is to say, four and a half months after the operation—she observed a vaginal discharge of blood, accompanied by acute pain in the abdomen, and she noticed that the swelling on the right side of the abdominal wound had again appeared. She suffered also from a dull pain across the sacrum, from headache, and from lassitude. This discharge, which was thus associated with the usual signs and symptoms of a normal menstrual period, continued up to April 30th, 1910, and subsequently gradually diminished.

When the patient was readmitted on May 4th, 1910, there was slight leucorrhoea, but no discharge of blood. The os was unduly soft. The ovary in the right abdominal wall was tender and much swollen, measuring approximately 5 in. in diameter. There was no redness nor oedema of the overlying tissues. The temperature was 99° F., the pulse was 76, and the respirations averaged 24. The heart and lungs appeared to be normal, and the urine, which had a specific gravity of 1005, was acid in reaction and free from albumen and sugar.

On the following days the ovary steadily diminished in size, and by May 10th it was only just palpable, only very slightly tender, and the patient was practically free from all pain.

If we are to venture, in view of the facts of this case, to put forward any hypothesis regarding the nature of menstruation, we would say that the female organism is, in the first place, during a month under the influence of a toxin the origin of which is at present unknown but whose action is elective for the ovary; that the toxin produces an intense congestion of the ovary and perhaps a special metabolism; and that then an internal secretion derived from the ovary is formed which has a special action on the uterus, and which determines the discharge of blood. In the above case, for a period of four and a half months there were present certain signs such as the swelling of the ovary, flushings, and general lassitude, which were strong evidence of the presence in the organism of a poison having an elective action for the vasomotor system. After this period the grafted ovary had become permeated by new vessels originating from the parent body, newly-formed blood vessels had penetrated into the central portions of the ovary, and the menstruation, which up to that time had been in abeyance, was influenced by the grafted ovary, and occurred again in the usual manner.

REFERENCE.
[1] *Les greffes ovariennes*, Thèse de Paris, 1910.

A CASE OF SLEEPING SICKNESS SHOWING REGULAR PERIODICAL INCREASE OF THE PARASITES DISCLOSED.*

BY

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AND

DAVID THOMSON, M.B., Ch.B., D.P.H.

[*Prefatory Note by R. Ross.*—For a long time it has appeared to me that much light might be thrown on infectious diseases, immunity, and treatment, by more exact enumeration of the infecting organisms, and that we might even be able ultimately to apply mathematical reasoning to the study of these subjects. In 1903[1] I elaborated a method of blood examination, called the *thick-film process*, which enables us to detect small organisms in the blood about twenty times more easily than in ordinary preparations; but for the lack of the necessary assistance I was long unable to apply the method to the laborious enumeration of such organisms. Recently, however, the Advisory Committee for the Tropical Diseases' Research Fund has placed considerable funds at the disposal of the Liverpool School of Tropical Medicine for the study of cases in the tropical ward of the Royal Southern Hospital, Liverpool, with the result that the investigations referred to were commenced by Dr. David Thomson and myself from the beginning of this year. As I expected, methodical counting of the parasites has at once verified or disclosed several facts of importance in connexion with malaria and trypanosomiasis.]

In this communication we limit ourselves to a brief description of the remarkable periodical increase of *Trypanosoma gambiense* revealed by careful daily counting in a case in the Tropical Ward, Royal Southern Hospital; it is still under treatment, and the eventual outcome will be reported later.

W. A., male, aged 26 years, a strong young man born in Northumberland, was infected in North-East Rhodesia in September, 1909, the trypanosomes being found in his blood in Africa on November 17th. He was admitted into the Southern Hospital, Liverpool, on December 4th. From then until February 16th (seventy-three days) the number of trypanosomes in his blood was estimated only by the rough methods in common use—that is, by the proportion of trypanosomes to red cells or leucocytes, or to "fields" of the microscope examined. These methods are obviously open to such great error that they can scarcely be depended upon to indicate any but very large differences in the numbers of objects counted. During the seventy-three days forty-six counts were made; but on several occasions none was attempted for three or four days in succession, so that, even if the methods of counting employed had been more accurate, sudden fluctuations might easily have been missed. Hence, as was to be expected, the graph during this period is very irregular and almost worthless. On admission on December 4th the patient was reported to contain about 6,000 trypanosomes per cubic millimetre of blood, and large numbers, amounting to about 3,000 per cubic millimetre, were found on December 17th and 28th and on January 16th. All this time the patient was given the usual treatment with atoxyl and mercury, and received altogether ten doses of 2 to 4 grains of the former. Nevertheless, the parasites never fell below about 200 per cubic millimetre, as roughly estimated.

It was then found, however, that atoxyl was injuring the patient's sight (as sometimes happens), and other treatment was substituted. At the same time we elaborated a much more correct method of counting all the parasites in measured quantities (one quarter to 1 c.mm.) of blood taken in thick film; and from February 16th onward the trypanosomes were estimated daily by this method by one of us (D. T.). The attached chart gives the remarkable graph obtained up to the present (April 30th).

The numbers of trypanosomes found were scrupulously recorded, and the smoothness and regularity of the graph suggest that there was no very great error of observation. The blood was taken every day at about 10 a.m., but on April 5th and 6th several counts were made daily.

It will be seen that between February 16th and April 30th (seventy-three days) there were eleven rises in the number of the parasites. Up to April 7th there were seven rises, at intervals of seven or eight days. During this period the patient was given no atoxyl, but was treated with large doses of quinine (30 to 40 grains) daily, with frequent doses of methylene blue, and with trypan red on March 17th, 18th, 19th, and 20th.

On April 5th it was decided to administer atoxyl again, as shown on the chart, together with mercury and other treatment.

The temperatures were taken by the Sister of the ward, and it will be seen that there has always been a tendency to a slight rise in temperature concurrent with the rise in the number of parasites—the two curves thus confirming each other. Only the maximum and minimum temperatures are entered in the chart.

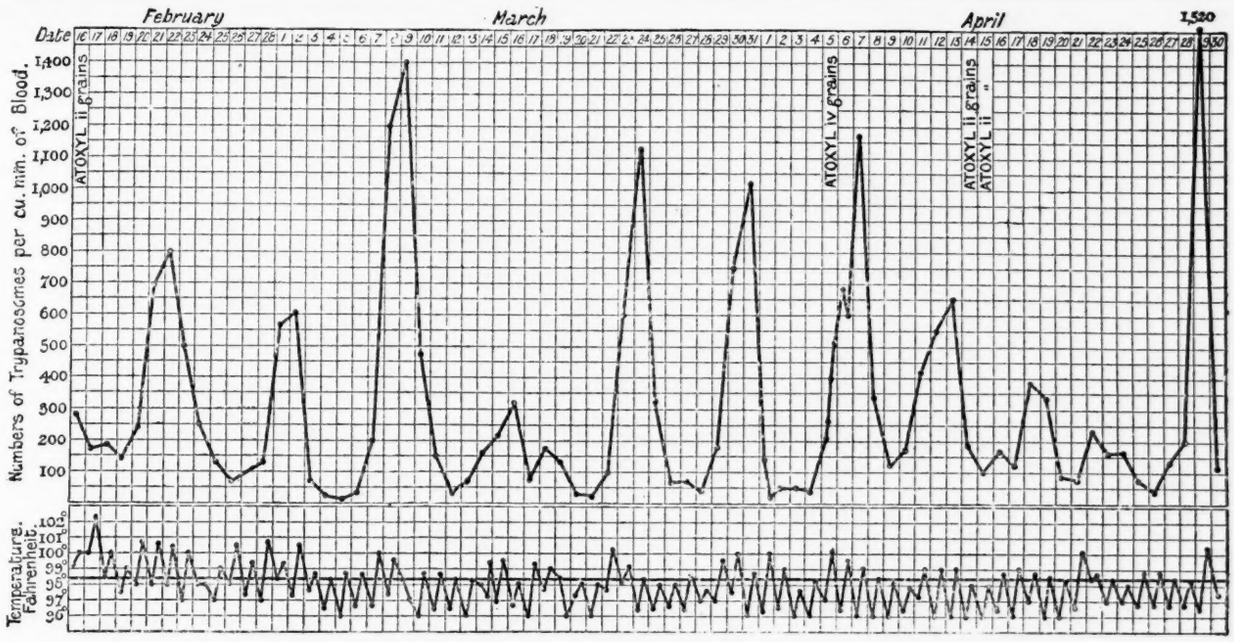
The great regularity of the rises can scarcely be compatible with a mere chance distribution. It will also be observed that the rises were of two kinds—namely, high rises and low rises; and that the two kinds alternated with regular periodicity until April 18th, at which point the cycle appears to have become distorted—probably in consequence of the treatment. The regularity of alternation of the high and low rises is so well marked as to recall the picture of a double tertian malaria, and to suggest that two independent sets of parasites may exist in the patient, just as often happens in malaria.

The large dose of atoxyl given on April 5th seems to have had no effect whatever on the following rise; but the succeeding rises were apparently modified for some reason. The value of the enumerative method for therapeutical research is obvious.

Of course many other facts in connexion with the case have been recorded, and parallel work is being done on subinoculated animals and on the parasites. It is, therefore, inadvisable to attempt at present any discussion of the many interesting theoretical questions which arise.

We are much indebted to the Director of the Sleeping Sickness Bureau (Dr. Bagshawe) for having given us references to the literature on the subject of such fluctuations. In the original case of Dutton and Ford it was noted that the parasites varied in numbers, and that a parallel rise in the patient's temperature occurred. Manson and Daniels[2] chart the number of parasites compared with 500 leucocytes; but the error of this method is very large, and their graph is quite irregular. They abandoned

* Read before the Royal Society, June 16th, 1910.



counts in measured quantities of blood as "unreliable." Thomas and Breinl[3] showed that in three cases of sleeping sickness the numbers of trypanosomes found in "fresh cover-slip preparations" varied irregularly from time to time. Koch, Beck, and Kleine (1909) remark on the irregularity of the appearance of *T. gambiense* in African natives, and state the parasites are present for two to five days, and absent for two to three weeks. Salvin-Moore and Breinl[4] show a graph with two undulations and a final premortal rise in two heavily infected rats, and give a detailed description of corresponding changes in the parasites. Apparently, hitherto, only irregular variations in the numbers of the parasites seem to have been recognized; probably the large error due to inadequate methods of counting has disguised the regular periodicity of the variation shown by more exact counts in the eleven successive undulations observed in our case.

We should add that our methods enable us to detect parasites when they are in numbers so small that their detection by the ordinary methods would be exceedingly laborious. Hence, if our case had been studied by the ordinary methods, probably only the crests of the rises would have been visible in the chart, and it would have been said that the parasites had disappeared in the intervals.

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[1] *Lancet*, January 10th, 1903, and *Thompson Yates Reports*, vol. v, Part I, 1903. [2] BRITISH MEDICAL JOURNAL, May 30th, 1903. [3] *Memoirs of the Liverpool School of Tropical Medicine*, vol. xvi, 1905. [4] *Annals of Tropical Medicine, Liverpool*, vol. i, No. 3, 1907.

Memoranda:
MEDICAL, SURGICAL, OBSTETRICAL.

A *POST-MORTEM* REPORT OF A CYSTIC SPLEEN.

On Friday, May 20th, I was called to view the body of a Portuguese, aged 48 years, who had been working—coaling a ship that day, and had complained of feeling sick. He had retired to his bunk, was given a little stimulant, and a few minutes later had died. I found the body lying partially on the left side. There was a considerable amount of foaming at the mouth. On inspection he was found to have a double inguinal hernia, easily reducible. The abdomen was moderately distended, and on the left side, slightly below the costal arch, was a swelling extending to a level with the umbilicus and across the middle line for about 1½ in. There were no marks of violence, and the body was just warm. I was unable to certify the cause of death, and by direction of the coroner made a *post-mortem* examination the following morning. An incision was made from the suprasternal notch to the pubis, and the parts exposed.

Thorax.—The pericardium contained some clear fluid, and on opening it the heart showed signs of fatty degeneration. The ventricles and auricles were filled with dark clotted blood; there was no valvular insufficiency, but there were a few calcareous deposits at the base of the aorta, and the muscular walls were much thinner than normal, and friable. The right lung was typically anthracosed, but otherwise normal. The left lung was also anthracosed, pushed up to about the lower margin of the sixth rib, and extremely adherent at all points, apically, towards the root, at the base and sides. The pleura was not visibly thickened.

Abdomen.—The first thing that presented itself was a large tumour about the size of a large melon, larger at the free border, and tapering slightly to its attachment below the ribs; about one-fifth of the tumour was underneath the costal arch and resting against the diaphragm, and the remaining four-fifths below the level of the costal margin. The tumour wa extremely adherent to the surrounding tissues and organs, except the stomach, which was pushed away to the right, occupying a position below the liver against the gall bladder. On attempting to remove the tumour, which was evidently the spleen, it was ruptured at its lowest margin, and a quantity of thick whitish-yellow fluid, of the consistency of custard, escaped. With a pair of scissors I opened the tumour in its entirety, and found a clear fluid in which were floating globules of various sizes, from the size of a Tangerine orange to that of a hazel nut or almond. These floating bodies consisted of a clear, translucent membrane containing a fluid similar to that in which they were suspended. The cavity in which they floated was unilocular. The thickness of the walls of the tumour was about half an inch. The stomach was very small, and measured about 5 in. in length and 3 in. in breadth. It was not further examined. The kidneys were congested. The liver was enlarged, and extended for 1 in. below the costal margin, and was congested. The gall bladder appeared normal.

Diagnosis.—I took specimens of the cystic bodies to the Sanitary Commissioners' Laboratory, where there were kindly examined for me by Mr. Abrines. Hooklets were found, and the diagnosis of *Taenia ecchinococcus* made.

An examination of the literature of *Taenia ecchinococcus*, or hydatid, shows that of 1,862 collected by Davaine, Cobbold, Finsen, and Neisser, the liver was affected in 953, the intestinal canal in 163, the lung and pleura in 153, kidneys, bladder, and genitals in 186, the brain and spinal cord in 129, bone in 61, blood vessels in 62, and other organs in 158. Of 50 cases treated by Mosler, the liver was affected in 36, the lungs in 10, the kidney in 3, and the spleen in 1.

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Gibraltar.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

EAST LONDON HOSPITAL FOR CHILDREN, SHADWELL.

A CASE OF SARCOMA OF THE PETROUS BONE.

(By W. H. BOWEN, M.S., F.R.C.S.Eng., late Surgeon; and H. B. CARLYLL, M.A., M.B., B.C.Cantab., Resident Medical Officer.)

THE patient in the following case—a child, aged 9 months—was admitted on October 8th, 1909, suffering from a polypus in the left ear, associated with a purulent discharge. The polypus had been noticed for a week, and its removal had been attempted by a doctor, who advised the parents to bring the child to the hospital. The mother had observed that the child, since it was 6 months old had been dull and apathetic. Screaming fits had occurred since it was three weeks of age, and "fits" during the past two months. It was an only child. Labour had been difficult, and instruments were used. The mother thought that the child's head had suffered some injury on the left side at the time of birth.

Fig. 1.—November 19th, 1909. Polypoid growth in concha. Rapidly growing mass between angle of jaw and ear.

State on Admission.

The child was of average size, and well nourished. It appeared to be mentally deficient, and was almost, if not completely, blind. Its eyes were examined by the late Mr. Ilbert Hancock, who found patches of congenital choroiditis. Slow circulatory nystagmus was also observed. This had been present since birth. There was no head nodding. Some bloodstained purulent discharge escaped from the left ear, and there was a polypoid granulation to be seen, reaching as far as the outer limit of the meatus.

Fig. 3.—Tumour attached to bone, removed after death.

Treatment and Progress.

Two days after admission a slight swelling was noticed over the angle of the left jaw, and while the ear was being syringed a piece of gelatinous polypus, with some blood, came away. On October 12th the remainder of the polypus was removed by means of a snare, the inner part of the middle ear being scraped at the same time. A week later definite signs of recurrence of the polypus were noticed and the swelling over the angle of the lower jaw had increased in size. The recurrence was most pronounced, being as large if not larger than when first removed. It was bathed in pus, and suggested very active temporal osteomyelitis. Facial paralysis on the left side was also observed at this time. On October 19th a swelling had appeared behind the left ear, and on pressing this a quantity of offensive pus escaped from the meatus.

This abscess was incised and the antrum opened, the operation being carried out as for acute mastoid disease. The antrum was found full of granulations, which were scraped away. The pus had tracked down the neck in several directions. The wound was plugged and left open. At a second operation three days later the bridge was removed and extensive opening of all the cavities of the ear carried out. The dura mater was exposed in the middle and posterior fossae, but not found involved. The mastoid process was perforated and a probe passed through the opening in the bone into the abscess cavity at the angle of the lower jaw. This abscess was also incised. The incision behind the ear was sewn up.

On November 5th the child had slight general convulsions. The mastoid incision healed by first intention. On November 13th considerable haemorrhage occurred whenever the plug in the meatus was removed. In spite of the completeness of the operation the polypus had so recurred within a very short time as to form a large growth projecting into the concha.

It was now evident that the diagnosis of malignant disease was probably correct, and this was further confirmed when the mass at the angle of the jaw, though fully drained, increased in size and commenced to infiltrate the neighbouring tissues. Gradual progressive enlargement of the mass occurred along the angle of the lower jaw. There was no sudden increase in size as would have occurred from haemorrhage into its interior, and the consistency of the tumour did not vary. The child was able to swallow readily, but during December occasionally coughed up some blood. The temperature ranged between 97° and 102° F.

Fig. 2.—December 9th, 1909.—Twelve days before death.

Result.

Death occurred on December 21st, fifteen weeks after the commencement of the illness. From first to last there were no brain symptoms, and the facial involvement varied frequently, the paralysis being sometimes complete, and occasionally so slight as to escape detection. There were no signs of labyrinthine irritation at any time.

REMARKS.—A complete *post-mortem* examination was not obtained, but a subcutaneous dissection of the tumour and removal of the petrous portion of the temporal bone was performed. The tumour dissected of skin was about the size of a tennis ball, and with the piece of attached bone weighed 9½ oz. Microscopic examination of the tumour showed a typical round-celled sarcoma. The clinical history and appearance of the specimen suggest that the disease started as a primary sarcoma of the middle ear, with secondary involvement of the antrum and mastoid. The case in the first instance was thought to be chronic middle-ear disease. There was nothing in the appearance of the polypus, as first seen, to suggest malignant disease, but bathed in pus as it was, and with its rapid history, it suggested rather active disease. The rapid recurrence might have raised suspicion, but was attributed to active bone disease, calling for a radical operation. When, despite a complete operation and packing, the polypus rapidly recurred, the malignant nature of the disease became manifest. It is probable that the haemoptysis was caused by malignant deposits in the lungs.

AT a sale of work in aid of the Peckham Nursing Association it was reported that during the past year the two certificated nurses had paid 6,460 visits to 247 cases.

FROM the thirty-fifth annual report of the Mission to Lepers in India and the East we gather that the society is now supporting or helping some 10,000 lepers or children removed by the society from their tainted parents. During the year additional accommodation was made near Simla for European and Eurasian lepers, of whom six are in residence. At Wuchow, in China, an island has been acquired and provision made for using it for the segregation of Chinese lepers and their employment in fishing. The annual expenditure of the society appears to be about £30,000 a year, home administrative expenses absorbing some 9 per cent. of that sum. It has its head quarters at 33, Henrietta Street, W.C.